The material in this catalog has been prepared for information purposes and does not constitute a contract between the student and the university. The university reserves the right to make changes in policy, regulations, fees, academic calendar, and programs without notice. In order to make current academic information available to students, new course descriptions and changes in academic policies and programs that have been made since the publication of this bulletin will be printed in the quarterly class schedules.

The course descriptions included in this catalog represent the entire range of undergraduate courses offered at Wright State (for graduate courses, see the Graduate Catalog). However, not all are available every quarter or every year. For a listing of the specific courses offered in a particular quarter, students should consult the quarterly class schedule. Questions concerning admission to the university or questions about academic programs should be directed to the Office of Admissions, Wright State University, Dayton, Ohio 45435, telephone 513/873-2211.

This catalog was prepared by the department of University Communications, Wright State University, Dayton, Ohio.

Fall Quarter September 14-December 3, 1983

- September 14, Wednesday/classes begin
- November 11, Friday/Veterans Day holiday
- November 23, Wednesday/classes end
- November 24-27, Thursday-Sunday/Thanksgiving holiday
- November 28-December 3, Monday-Saturday/final examinations
- December 3, Saturday/December Commencement

Winter Quarter January 3-March 17, 1984

- January 3, Tuesday/classes begin
- January 20, Friday/Martin Luther King holiday
- March 9, Friday/classes end
- March 12-17, Monday-Saturday/final examinations

Spring Quarter March 26-June 9, 1984

- March 26, Monday/classes begin
- May 30, Wednesday/Memorial Day holiday
- June 2, Saturday/classes end
- June 4-9, Monday-Saturday/final examinations
- June 9, Saturday/June Commencement

Summer Quarter June 11-August 17, 1984

- June 11, Monday/Terms A and C classes begin
- July 4, Wednesday/Independence Day holiday
- July 13, Friday/Term A classes end
- July 16, Monday/Term B classes begin
- August 17, Friday/Terms B and C classes end

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This catalog was prepared by the department of University Communications, Wright State University, Dayton, Ohio.
Fall Quarter September 13-December 1, 1984

September 13, Thursday/classes begin
November 12, Monday/Veterans Day holiday
November 21, Wednesday/classes end
November 22-25, Thursday-Sunday/Thanksgiving holiday
November 26-December 1, Monday-Saturday/final examinations
December 1, Saturday/December Commencement

Winter Quarter January 2-March 16, 1985

January 2, Wednesday/classes begin
January 18, Friday/Martin Luther King holiday
March 11, Monday/classes end
March 12-16, Tuesday-Saturday/final examinations

Spring Quarter March 25-June 8, 1985

March 25, Monday/classes begin
May 30, Thursday/Memorial Day holiday
June 1, Saturday/classes end
June 3-8, Monday-Saturday/final examinations
June 8, Saturday/June Commencement

Summer Quarter June 10-August 15, 1985

June 10, Monday/Terms A and C classes begin
July 4, Thursday/Independence Day holiday
July 11, Thursday/Term A classes end
July 15, Monday/Term B classes begin
August 15, Thursday/Terms B and C classes end
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Course Abbreviations

Specific courses in curriculum outlines and lists of degree requirements are indicated by the following abbreviations for the areas of study:

ACC  Accountancy
ADM  Administration
AIS  Administrative Information Systems
AES  Aerospace Science
ANT  Anatomy
ATH  Anthropology
ART  Art and Art History
AED  Art Education
AT  Art Therapy
AVI  Aviation
BCH  Biological Chemistry
BIO  Biological Sciences
CHM  Chemistry
CLS  Classics
COM  Communication
CPL  Comparative Literature
CEG  Computer Engineering
CS  Computer Science
CPE  Cooperative Education
CNI  Counseling
DAN  Dance
DN  Danish
EC  Economics
ED  Education
EGR  Engineering
ENG  English
ENV  Environmental Studies
FIN  Finance
FR  French
GEO  Geography
GL  Geological Sciences
GER  German
GR  Greek
HPR  Health, Physical Education, and Recreation
HST  History
ITA  Italian
LAT  Latin
LE  Law Enforcement
LA  Liberal Arts
LCS  Library and Communication Science
LI  Linguistics
MGT  Management
MKT  Marketing
MTH  Mathematics
MT  Medical Technology
M&I  Microbiology and Immunology
MIL  Military Science
ML  Modern Language Humanities
TH  Motion Pictures
MUS  Music
NUR  Nursing
OA  Office Administration
PHL  Philosophy
PHY  Physics
PHS  Physiology
POL  Polish
PLS  Political Science
POR  Portuguese
PSY  Psychology
QBA  Quantitative Business Analysis
RHB  Rehabilitation
REL  Religion
RUS  Russian
SW  Social Work
SOC  Sociology
SPN  Spanish
STT  Statistics
SS  Study Skills
TAC  Technical Accountancy
TAD  Technical Administration
TAU  Technical Automotive
TDP  Technical Data Processing
TEG  Technical Engineering
TEN  Technical English
TFI  Technical Finance
TMG  Technical Management
TKM  Technical Marketing
TMT  Technical Mathematics
TOA  Technical Office Administration
TPH  Technical Physics
TPS  Technical Psychology
TOB  Technical Quantitative Business Analysis
TSM  Technical Sociology
TH  Theatre
UH  University Honors
URS  Urban Studies
TWW  Water Well Technology

Course Numbering System

0-99 Remedial precollege level courses.
100-499 Lower division courses intended for undergraduate credit only. The first digit indicates the general level of the course: 1 for a first-year course, 2 for a second-year course, 3 for a third-year course, 4 for a fourth-year course. Courses in this category that are acceptable for graduate credit carry alternate numbers in which the first digit only is changed to a 5 or a 6 according to the definitions below.

500-599 Courses that carry graduate credit only in a major field different from that of the department offering the course. Most such courses will be alternate designations of courses normally numbered 300-499.
600-699 Courses that carry graduate credit in any major field and have alternate designations in which the first digit is a 3 or 4 when taken for undergraduate credit.
700-999 Courses intended for graduate credit only. Unclassified students may, with the approval of the department offering the course, register for undergraduate credit in courses numbered 700-799.

The number following the hyphen indicates the number of credit hours for that course. Courses designated by consecutive numbers are related courses; courses to be taken in sequence are so designated in the descriptions.
Wright State University
Wright State University is a fully-accredited state-assisted university, offering to a student population of nearly 15,000 more than a hundred undergraduate majors, twenty-seven master's degree programs, and programs of study for the M.D., Psy.D., and Ph.D. degrees. We've reached this state in our growth just nineteen years after opening our doors in 1964 as the Dayton Campus of the Miami and Ohio State Universities. These schools had been offering classes in borrowed facilities in our area for many years, giving rise in the 1950s to the idea of a joint branch campus.

A community fund-raising effort in 1961 generated three million dollars, which financed the purchase of our 618-acre campus near Dayton, Ohio, and the construction of Allyn Hall, our first building.

In 1965, we became Ohio's twelfth state-assisted university, known as the Wright State Campus. A major turning point was reached in October 1967, when we became an independent state institution. Wright State University was then recognized as fully accredited and autonomous. In a few short years, we had grown from a faculty of fifty-five and a student population of 3,200 to a university with 5,000 students registered in ninety-six different programs and concentrations, master's degree programs in five disciplines, and 206 faculty members. Three new buildings had been constructed, completing Founders Quadrangle in the center of campus.

Since that time, our history has continued to be characterized by growth and change. The residence hall opened in 1970, followed by the completion of the University Center and the president's house in 1971. In 1973, we celebrated the openings of the Creative Arts Center, the University Library, the Physical Education Building, and the Brehm Laboratory. Facilities for the biological sciences were completed in 1975 and 1976, and the Medical Sciences Building was dedicated in 1976. New offices, bringing together student services in one central location, were completed in 1977.

The creation of the Wright State University School of Medicine in 1974 marked our first professional doctorate and indicated our commitment to providing resources for primary health care. The first class of medical doctors graduated in 1980.

In 1977, we received authorization to establish a School of Professional Psychology and planning approval was granted for a Ph.D. program in biomedical sciences. Both programs admitted their first students in 1979.

In 1981, construction was completed on Rike Hall, housing the College of Business and Administration, and the Frederick A. White Center for Ambulatory Care, which is both a teaching facility and a center for health care services. Under construction now are the Laboratory Animal Resources building and an expansion of Oelmann Hall; plans are under way to build the National Center for Rehabilitation Engineering.

Since our beginning in 1964, we have continually expanded and responded to community needs. We have grown from a branch campus to a fully independent, comprehensive university with more than eighty programs of study leading to ten different baccalaureate degrees and more than thirty programs of graduate and professional study. Through the Colleges of Business and Administration, Education and Human Services, Continuing and Community Education, Liberal Arts, and Science and Engineering; the Schools of Graduate Studies, Medicine, Nursing, and Professional Psychology; and our branch campuses, we offer a fully balanced university program, committed to excellence and community service.

People

Our 14,800 individual students don't fall easily into any one category. To give you a general idea about them, we rely on studies and statistics gathered from different areas of the university.

The majority of our students are undergraduates—more than 11,000, most of whom come from southwestern Ohio. We also have students from states such as California and New York, as well as foreign students from Ethiopia, Greece, Peru, and Nigeria.

Most of our students are commuters. About ninety-six percent regularly travel to campus for their classes. RTA provides regular service to the campus within Montgomery County. Many of our full-time undergraduate students live at home; others live in off-campus rooms and apartments. University housing accommodates approximately 600 students—160 men and 160 women in separate wings in Hamilton Hall and 288 in two- and four-person furnished apartments next to the campus.

Some of our students are slightly older than those at most other campuses. About a fourth are under twenty-one and twenty-seven percent are over thirty; the median age is twenty-four. A 1982 study indicated that fifty percent of our students are male and sixty-three percent of our students are single.

A number of handicapped students have chosen us because of our excellent facilities and support services. About two percent of our student population are people with a variety of disabilities.

Academically, we find Wright State students represent the entire spectrum of the scale, according to national ACT results. The ACT profile also indicates that the mean average of four high
school grades for our freshmen is 3.01 on a 4.0 scale, with twenty-three percent of them falling between 3.5 and 4.0.

For students who want it, the opportunities are good for close contact with faculty. The size of classes at Wright State varies from large lecture sessions to small classes and seminars. About seventy percent of our classes have enrollments between five and forty.

Our faculty's average age is between thirty-five and forty. Almost half are between the ages of thirty-four and forty-three. About eighty percent of our full-time faculty hold terminal degrees in their fields and many also bring valuable professional experience to the classroom. The faculty includes about 505 full-time and 211 part-time members.

As a state-assisted university, we have an open enrollment policy for undergraduate students, which means we accept Ohio residents who have graduated from an accredited high school, or who have passed a high school equivalency test, at the earliest possible time we can accommodate the applicant.

**Purpose**

Our purpose is to maintain a free and cosmopolitan environment in which people may work to achieve excellence in teaching, substantial contributions to human knowledge, and major service to humanity. We're committed to providing career and professional education for our students as well as study outside the chosen area of specialization. We view education as a lifelong learning process, so in addition to traditional degree programs, we provide adult education through a variety of nontraditional programs. To enhance learning, we feel it's important for the teacher and the student to exchange ideas freely. We expect our faculty to experiment with innovative teaching techniques.

We want our faculty and students to remain open-minded and to explore new directions which may contribute to human knowledge. We encourage basic research in the arts and humanities, as well as in the sciences and technical fields.

As a public institution of higher education we make every effort to serve the larger community by being particularly responsive to the needs of the Miami Valley region and the state of Ohio.

We seek to create an environment in which each person has academic freedom—the opportunity to learn the truth about any subject as long as it doesn't interfere with others' rights.

Because we value diversity in viewpoints, we actively seek faculty and students of different backgrounds.

We're constantly working to eliminate discrimination. Wright State has, since its
beginning, been a leader in providing opportunities and services for the handicapped and disabled. It is our policy not to discriminate on the basis of handicap/disability, age, sex, race, color, religion, national origin, or ancestry in any of our educational programs, admissions, activities, and employment and promotion procedures, as required respectively by Section 504 of the Vocational Rehabilitation Act of 1973 and by Title IX of the 1972 Education Amendments. Questions regarding compliance with either Section 504 or Title IX can be directed to 120B Allyn Hall, Wright State University, Dayton, Ohio 45435, telephone 513/873-2697 or to the Director of the Office for Civil Rights, Department of Health and Human Services, Washington DC. Questions regarding compliance with Section 504 may also be directed to Stephen Simon, Wright State University, Dayton, Ohio 45435, telephone 513/873-2140.

Moreover, we have an established program of affirmative action on campus with special program counselors to ensure equal opportunity for all qualified people and to prevent any person from experiencing discrimination at Wright State.

Degrees and Areas of Study

Wright State grants these baccalaureate degrees: Bachelor of Arts (B.A.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.Mus.), Bachelor of Science (B.S.), Bachelor of Science in Business (B.S.B.), Bachelor of Science in Computer Engineering (B.S.C.E.), Bachelor of Science in Education (B.S.Ed.), Bachelor of Science in Engineering (B.S.E.), Bachelor of Science in Medical Technology (B.S.M.T.), and Bachelor of Science in Nursing (B.S.N.).

The following associate degrees, available only at the Western Ohio Branch Campus, are also granted: Associate of Arts (A.A.), Associate of Science (A.S.), Associate of Applied Business (A.A.B.), and Associate of Applied Science (A.A.S.).

The fields of study in which Wright State offers course work leading to a baccalaureate degree follow.

College of Business and Administration

Accountancy (B.S.B.)
Business Economics (B.S.B.)
Finance (B.S.B.)
Management (B.S.B.)
Management Science (B.S.B.)
Marketing (B.S.B.)

College of Education and Human Services

Art Education (B.S.Ed.)
Biological Sciences Education (B.S.Ed.)
Business Education with Shorthand (B.S.Ed.)
Business Education without Shorthand (B.S.Ed.)
Chemistry Education (B.S.Ed.)
Earth Science Education (B.S.Ed.)
Educational Media (B.S.Ed.)
Elementary Education (B.S.Ed.)
English Education (B.S.Ed.)
History Education (B.S.Ed.)
Mathematics Education (B.S.Ed.)
Modern Languages Education (B.S.Ed.)
Physical Education (B.S.Ed.)
Physics Education (B.S.Ed.)
Rehabilitation Education (B.S.)
Science Comprehensive Education (B.S.Ed.)
Social Studies Comprehensive Education (B.S.Ed.)
Special Education/Mentally Retarded, Learning Disabilities (B.S.Ed.)
Speech and Theatre Education (B.S.Ed.)

Second Teaching Fields Only

Economics Education
General Science Education
Geography Education
Health Education
Latin Education
Political Science Education
Sociology Education

College of Liberal Arts

Anthropology (B.A.)
Art and Art History (B.A., B.F.A.)
Classical Humanities (B.A.)
Communication (B.A.)
Dance (B.F.A.)
Economics (B.A.)
English (B.A.)
*Environmental Studies (B.A., B.S.)
French (B.A.)
Geography (B.A., B.S.)
German (B.A.)
Greek (B.A.)
History (B.A.)
Latin (B.A.)
Modern Languages (B.A.)
Motion Pictures (B.A., B.F.A.)
Music (B.A., B.Mus.)
Philosophy (B.A.)
Political Science (B.A.)
Religion (B.A.)
Selected Studies (B.A., B.F.A.)
Social Work (B.A.)
Sociology (B.A.)
Spanish (B.A.)
Theatre Arts (B.A., B.F.A.)
Urban Studies (B.A., B.S.)
Colleges of Science and Engineering
Biological Sciences (B.S., B.A.)
Biomedical Engineering (B.S.E.)
Chemistry (B.S., B.A.)
Computer Engineering (B.S.C.E.)
Computer Science (B.S., B.A.)
Engineering Physics (B.S.E.)
Environmental Health (B.S.)
*Environmental Studies (B.S., B.A.)
Geological Sciences (B.S., B.A.)
Human Factors Engineering (B.S.E.)
Materials Science and Engineering (B.S.E.)
Mathematics (B.S., B.A.)
Medical Technology (B.S.M.T.)
Physics (B.S.)
Psychology (B.S., B.A.)
Systems Engineering (B.S.E.)
*Dual Major

School of Nursing
Nursing (B.S.N.)

Academic Organization and Programs
We offer undergraduate programs in the Colleges of Business and Administration, Education and Human Services, Liberal Arts, and Science and Engineering, in the School of Nursing, and through the Western Ohio Branch Campus. Graduate programs are offered through the School of Graduate Studies, the Schools of Medicine and Professional Psychology and the College of Science and Engineering offer professional and postbaccalaureate programs.

Noncredit courses are available through the College of Continuing and Community Education, and some credit courses are offered at Wright State University Extension/Piqua.

The College of Business and Administration
Many programs are available to prepare students for careers in business. Bachelor of Science in Business degree programs are offered with majors in accountancy, business economics, finance, management, management science, and marketing. Some of these programs include internships and co-op opportunities to give students valuable professional experience before they leave the university.

The College of Education and Human Services
Basically a professional school, the college is devoted to preparing entry-level teachers, educational administrators, and other school leaders, and to preparing professionals in human services such as counseling, rehabilitation, and therapy. The college awards the Bachelor of Science in Education and Bachelor of Science degrees.

The College of Liberal Arts
The college offers programs in the fine arts, social sciences, and the humanities which lead to the Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science degrees. Many different career orientations are available through liberal arts studies. In addition, departments within the college offer specific courses which meet the university's General Education requirements. These general studies allow students to view a wide variety of subjects at an introductory level before they choose and prepare for their careers.

The College of Science and Engineering
Primarily discipline-oriented, the college offers programs leading to the Bachelor of Science, Bachelor of Science in Medical Technology, Bachelor of Science in Engineering, Bachelor of
Science in Computer Engineering, and Bachelor of Arts degrees as well as interdisciplinary programs in computer engineering, computer science, engineering physics, and environmental studies. General Education courses in the sciences are offered by various departments. As an alternative to traditional graduate programs, the college also offers the Professional Development Degree program, which grants a postbaccalaureate degree in engineering.

The School of Nursing
Geared toward meeting community needs, the School of Nursing offers a nursing program designed to give students the knowledge and skills to deal with the health care needs of people. The program leads to the Bachelor of Science in Nursing degree which qualifies the graduate for the State Board Test Pool examination required for state licensure as an R.N. A Master of Science degree in rehabilitation/community health nursing is also offered in cooperation with Miami University.

The School of Graduate Studies
The graduate school is responsible for twenty-seven master's degree programs, a post-master's degree (Educational Specialist), and the Doctor of Philosophy degree in biomedical sciences, as well as courses for certification programs in teaching English to speakers of other languages; cartography, photogrammetry, and remote sensing; and archival and historical administration. Degrees may be earned in the following fields of graduate study.

Master's Degree Programs

**Master of Arts**
Applied behavioral science, classroom teacher, educational leadership, English, history, personnel counseling, selected graduate studies, student personnel services

**Master of Art Therapy**

**Master of Business Administration**
Accountancy, finance, financial administration, logistics management, management, management science, marketing

**Master of Education**
Classroom teacher, educational leadership, student personnel services

**Master of Humanities**

**Master of Music**
Music education

**Master of Rehabilitation Counseling**

**Master of Science**
Aerospace medicine, biology, chemistry, computer engineering, computer science, geological sciences, mathematics, personnel counseling, physics, rehabilitation/community health nursing, social and applied economics, selected graduate studies, systems engineering

**Master of Science in Engineering**
Engineering

**Master of Science in Teaching**
Earth science, physics

**Post-Master's Degree Program**

**Educational Specialist**

**Doctoral Degree**

**Doctor of Philosophy**
Biomedical Sciences

The School of Medicine
The medical school's goal is to provide professional education for future primary care physicians. Graduates of this four-year doctoral program receive the Doctor of Medicine (M.D.) degree.

The School of Professional Psychology
The school offers a doctoral program which prepares men and women for work as professional psychologists. The program requires approximately four years of study and grants the Doctor of Psychology (Psy.D.) degree.

The College of Continuing and Community Education
A wide variety of noncredit courses is offered at the Eugene W. Kettering Center in downtown Dayton, on the main campus, and at several off-campus locations. These courses are designed to meet the needs of different groups of people such as professionals, homemakers, the elderly, and others interested in lifelong learning. Since the courses are noncredit, students may take courses without going through the university's formal admissions process.

Through its Saturday Morning Enrichment programs, the college provides an opportunity...
for children in kindergarten through eighth grade to explore and develop their special talents and interests. The Community Music Division of the Department of Music offers noncredit classes for Wright State students and Dayton area residents.

The college also cooperates with other academic colleges and departments on the main campus to offer special credit courses and workshops.

The Western Ohio Branch Campus
Located at Grand Lake St. Marys between Celina and St. Marys, Wright State’s branch campus serves Van Wert, Mercer, Auglaize, and Darke counties. Its day and evening classes are mostly lower division with a limited number of upper division and graduate courses available. There are also programs leading to two-year associate degrees. The prebaccalaureate Associate of Arts and Associate of Science degrees, as well as a variety of two-year Associate of Applied Business and Associate of Applied Science degree programs, are offered.

In addition, an associate degree in law enforcement technology is offered through a cooperative program with Lima Technical College.

Wright State University Extension/Piqua
Late afternoon and evening classes at the advanced and graduate levels are offered by Wright State University Extension/Piqua at Edison State Community College for the convenience of upper Miami Valley residents.

Alternative Academic Programs
In addition to conventional degree programs and classroom experiences, we also offer some innovative alternatives for undergraduate study. Most of our departments offer independent study, and off-campus education is prevalent in professional programs. In the College of Education and Human Services, off-campus participation ranges from observing to student teaching, and in the College of Business and Administration, internships and class projects bring students in contact with local business and industrial firms. Students in nursing, social work, and other areas have direct contact with many outside agencies.

The university accepts the recommendation made by the American Council on Education in “The 1980 Guide to the Evaluation of Educational Experiences in the Armed Services” for transfer credit earned by attending military school.

You can obtain credit by examination, which makes it possible for you to get college credit for courses available at the university by passing an examination offered by the appropriate department.

Many specific programs provide different ways to approach your college education.

Cooperative Education
Cooperative education programs, available through various departments, offer you the opportunity to alternate on-campus study with full-time or part-time educationally-related work experience. Cooperative jobs are found by the university and job placements are monitored by Cooperative Education staff and/or faculty. Academic credit for work experience may be earned in some departments. In other departments, students are required to register for Cooperative Education courses.

Through the co-op program, students can gain valuable learning experiences, test career interests, learn more about career fields, and develop job-related skills, as well as earn income for college expenses.

Co-op students participate in a university-sponsored educational program. During the work portion of their co-op program, registered co-op students are considered full-time students at Wright State.

Students interested in the optional co-op program are advised to make plans as early in their academic careers as possible. The Cooperative Education staff is available to help students apply to the program and to offer suggestions about planning and scheduling.

Interdisciplinary Study
Interdisciplinary study provides the opportunity to explore different areas or to tailor a major to your interests. Many courses are offered jointly by cooperating departments. You can also combine work in two different departments for a dual major. The selected studies major offered by the College of Liberal Arts allows you to pursue a self-designed course of study, culminating in a senior project, in an area where a major is not currently available. A concentrated five-year program permits Liberal Arts students to prepare
for careers in business by earning both the Bachelor of Arts and the Master of Business Administration degrees.

Honors

The University Honors Program offers students many opportunities to develop their intellectual interests. Small class size facilitates discussion, close contact between students and faculty members, flexibility, and independent thought. For specific information about the honors program and application requirements, see the chapter on Academic Standards and Requirements.

The honors program also provides avenues for students to develop their intellectual interests through participation in the Student Honors Association, the honors publication Chimera, and state and national honors organizations.

Expanding Horizons for Adults

Adults who are interested in college for personal fulfillment, career preparation, advancement, or a change of direction may participate in the Expanding Horizons Program. The program recognizes that adults who earlier discontinued their education may find the transition back to school a difficult one. Fear of competition with younger students, worry over diminished learning skill or outdated knowledge, and the stress of combining studies, class time, work, and/or family responsibilities are all of concern to the adult student. The program provides support and assistance to help minimize these potential problems.

The program offers courses with limited enrollment taught by instructors who are sensitive to the needs of adult students. Introductory courses in English composition, interpersonal communications, basic mathematics, and algebra are offered. Students may also select courses in study skills, assertiveness and personal effectiveness, overcoming math anxiety, and life/work planning. Counseling, financial aid, academic advising, health services, and career planning are available. Special orientation programs, brown bag lunches with speakers, and other activities provide a supportive environment for lifelong learning.

Courses are scheduled on the main campus and at the Kettering Center, 140 E. Monument Street in downtown Dayton. Courses on campus are generally for women only. Courses at the Kettering Center are attended by men and women separately or together depending upon the nature of the course.

Officer Training/ROTC

The Army and Air Force offer the Reserve Officer Training Corps (ROTC) program to any qualified student. The purpose of ROTC is to educate selected men and women for positions of responsibility and afford them the opportunity to be commissioned as second lieutenants in the Army and Air Force. The Army also offers the option for duty in the National Guard or Reserves.

The first two years of both programs have no military obligation. Each offers a competitive scholarship program that pays a student’s tuition, buys all books, and provides $100/month. A student involved in the Advanced or Professional Officer course would also receive $100/month during the school year.

Both programs are available to students with only two or three years remaining in their degree program. Two-year and compression programs have been established to facilitate participation in the ROTC program for freshmen and sophomores, or for juniors and seniors who will be enrolling in graduate study. Through a special program, advanced placement credit may be given to veterans and JROTC students. Graduate students may also be eligible for both ROTC programs.

The Army program is administered in two parts. The basic course emphasizes practical leadership techniques and management concepts that are equally applicable to both military organizations and private industry. The advanced course is designed to prepare students to be commissioned officers by including practical study in tactics, training, management, leadership techniques, and the exercise of command.

Students in the advanced course (cadets) are paid $100/month during the regular school year. During the summer quarter between the junior and senior years, they attend a six-week ROTC Advanced Camp which provides them with the opportunity to apply the leadership and technical training
received in the classroom. While at camp, cadets are paid half of the salary appropriate to the grade of second lieutenant.

The Air Force ROTC programs are the General Military Course (GMC) and Professional Officer Course (POC). The GMC introduces the student to the Air Force and its history through one hour of class and one hour of leadership laboratory each week. The POC consists of management, leadership, American defense policy, and introduction to command. Six courses involving three hours of class and one hour of leadership laboratory each week are required. Summer field training is four or six weeks long and is normally attended between the sophomore and junior years. It emphasizes Air Force careers and leadership development.

Further information is available in the Departments of Military Science and Aerospace Studies.

**Resources**

**Library**

The University Library plays a most important role in a student’s learning experience, as well as in research and teaching. The University Library’s collection contains over 286,000 bound volumes, 505,000 microforms, 138,000 US and Ohio documents, 45,000 pieces of nonprint media, and 3,570 periodical subscriptions.

The library’s Department of Archives and Special Collections houses one of the most complete depositories of information on the Wright brothers in the world. The Wright State collection of about 6,000 historical items includes manuscripts and records, a library of books that influenced the Wright brothers, technical journals that covered their progress, family papers, awards, and over 3,600 prints made by Orville and Wilbur Wright from their own negatives.

The archives also contain many other important collections such as the papers of James M. Cox, records of the Miami Conservancy District, and a collection of first editions of American women writers’ books.

Students and the general public who need access to maps can make use of the national map depository in the University Library. The map depository collection includes approximately 25,000 geological and topographical maps from all over the United States.

**Computer Services**

Academic computing services are provided and coordinated through the Research and Instruction Computation Center (RICC). The major objectives of the RICC are to provide and maintain the general purpose computing programs and equipment needed to support the instructional and research activities of the university.

The computer equipment installed at this time is an IBM 370-3031 AP, used for both academic and administrative processing. Many computer languages and programs are installed and are available to students and faculty. Information and guidance in using the facilities are available at the center. Offices and computing equipment are located in the basement of the library building and in Nite Hall.

**Consortium**

Wright State students also have hundreds of additional classes available to them through the university’s membership in the Dayton-Miami Valley Consortium, an association which includes many area colleges and universities. As a full-time student at Wright State, you may cross-register for credit at member schools at Wright State’s tuition rates as long as class space is available, you have your adviser’s consent, and the course isn’t offered at Wright State. You must also meet course and host college prerequisites.

The consortium also offers cooperative library privileges to students at all member institutions. These library holdings total more than a million volumes.
Resources for Special Interests

Helping others to understand and to appreciate black American culture and heritage is the goal of the Bolinga Black Cultural Resources Center on campus. The center sponsors lectures and seminars by noted speakers and performances and exhibitions by black artists. It also has audiovisual facilities and a library of special publications and black history books.

The College of Continuing and Community Education, in the Eugene W. Kettering Center in downtown Dayton, offers continuing education programs emphasizing areas beyond those covered by existing degree programs. Professional training in engineering, science, and management for members of the industrial-scientific community is also provided.

In 1977, the university was given national recognition for programs and activities in arts for the disabled and handicapped person. Because of our progressive programs in art therapy, the National Committee, Arts for the Handicapped, Washington DC, selected Wright State as a national model site and a national resource center. In 1982, a Center for Arts for the Disabled and Handicapped Person was formed and is located in the Creative Arts Center. Wright State continues to hold national prominence in programs and activities in the arts for all people.

The Institute for Community and Organizational Development (ICOD) provides valuable information and services both to the university community and to the community at large. The institute is composed of six different centers: Small Business Management, Professional Development, Business and Economic Research, Consumer Studies, Research Development, and Economic Education.

Academic Services

University Division

The University Division provides placement testing, academic advising, and developmental academic support services for new freshmen, both degree and nondegree.

Placement Testing

During each registration period, the University Division conducts placement testing in reading, writing, and mathematics for students new to the university. Results of these tests help identify present skill levels and aid in selecting appropriate courses for initial enrollment.

Academic Advising

University Division advisers assist students with scheduling and academic problems. Advisers help degree-seeking students to meet their university General Education requirements and the admission requirements of their selected major.

Developmental Education

The Developmental Education program provides free tutoring for all undergraduate students in 100-level courses. It offers instruction in study skills, reading improvement, fundamental English skills, and basic mathematics for students who need to improve their skills in these areas before taking college-level courses. Students taking fundamental English courses are scheduled to spend at least one hour per week in the writing laboratory. A course on understanding the Wright State University system provides an introductory overview of being a student in higher education. The program also provides a special adviser to help students with specific academic needs.

The Special Services Program for Underprepared Students makes it possible for students who are underprepared for college work, either because of inappropriate choices in high school or because of gaps in educational experience, to take additional developmental courses during the fall and winter quarters. These courses cover basic science concepts, including a survey of biology, chemistry, or geology, as well as the fundamentals of oral communication and library usage. In addition, the services of a counselor and a staff of peer facilitators are available to enhance psychological adjustment to college life.

In addition, for four weeks each summer the Developmental Education program conducts Wright Start for high school students in the Miami Valley who are considering higher education. If you are enrolled in the university, you may participate in the program at no cost as a means to review or preview course work.
Student Life
Student Services

In addition to classes and academic programs, there's much more to discover at a university. At Wright State, we have many services, facilities, and activities to give you the opportunity to enjoy all the benefits of university life. Many people are here to serve you, answer your questions, and help you over any rough spots that might occur.

Wright State's student services are a coordinated group of offices including Admissions, Financial Aid, Student Development, Student Employment, Career Planning and Placement, Handicapped Student Services, Veterans Affairs, Health Services, Student Information Systems, University and Student Programming, and the Bookstore. Other student-centered areas and activities include the University Center, the residence hall and apartments, intercollegiate athletics, intramural sports, and open recreation programs. The Psychological Services Center, located in the Frederick A. White Center for Ambulatory Care, offers personal counseling and seminars.

The student services offices are staffed by professionals who are equipped to help you in particular areas. Most of these services are free and you're invited to visit the offices any time.

The Student Handbook, available in the Office of Student Development, is an excellent guide on how to make the best use of Wright State's services and facilities.

The Office of Student Development provides general information and growth opportunities to students and student organizations through a number of programs. New student orientation introduces you to the university and its programs and services through workshops on numerous topics, campus tours, and small group participation.

The Student Handbook, written by the Student Development staff, outlines helpful information for you and lists all the university policies and procedures which govern students. The University Information Center in Allyn Hall answers questions on the spot and can refer you to the appropriate university offices for detailed answers to involved questions.

The Student Development staff also advises student organizations, supervises expenditures from the student activities fund, and is involved in developing policies concerning students. A special Student Development Program provides opportunities to develop leadership and communication skills through weekend experiential workshops offered once per quarter.

International students attending Wright State can find answers to their questions by consulting with the international student adviser, who is a member of the Student Development staff.

On-campus communication is aided by assigning each student who attends classes on the main campus a campus mailbox in the Allyn Hall student lounge. Most official university correspondence is placed in these mailboxes. You are assigned a mailbox in the fall and keep the same mailbox throughout the year unless you fail to register early for winter or spring quarter.

Assessing yourself and devising a career plan can help you get the most out of your college education. The Department of Career Planning and Placement concentrates on involving students and alumni in the process of career choice, and assisting them in finding both full-time and part-time positions.

Through workshops, academic courses, career counseling, and occupational testing, the department helps students explore and evaluate factors important to their career planning, such as their potential abilities, skills, interests, values, needs, and priorities. These planning services, supported by an extensive career library, can help you make decisions and find methods to explore the world of work.

Placement services help students develop their career paths through summer and part-time work, and assist seniors, graduate students, and alumni in finding full-time positions.

It's to your advantage to visit the Career Planning and Placement department during your freshman or sophomore year to begin planning for your career and to learn more about the special services available to you throughout your academic program. Seniors and graduate students are advised to register for placement services.

If you want to pursue a career in law, medicine, or other professional or graduate field, the Office of Professional and Graduate School Advising and Information provides a central source of information. The office maintains a reference library of catalogs for law, medical, and graduate schools and coordinates faculty advising for students interested in preparing for any of these careers. Each year the office sponsors programs in conjunction with many different law and medical schools and schedules visits by school representatives.
Personal growth, as well as intellectual development, is an important part of your university experience. The Psychological Services Center staff helps students learn to integrate their academic and personal lives through a variety of experiences. In addition to individual counseling, the center provides a life skills program entitled "Changes," a series of educational workshops designed to prevent mental health problems. Such topics as increasing self-esteem, assertion training, human sexuality, decision making, and transition groups for the divorced and separated are offered. New groups are added or changed as needs arise. Throughout the year the center also offers a Stress Clinic which enables students to learn better methods of coping with stress related to school, work, family, and personal life situations. Test anxiety, fear of failure, changing values, and uncertainty about future plans are some of the common concerns. Students can enter the Stress Clinic on a walk-in basis on Mondays from 1 to 3 pm and Thursdays from 2 to 4 pm.

Students who are interested in these programs or who have other personal concerns may call the Psychological Services Center for an appointment or visit the Psychological Services Center office Monday through Friday from 8:30 am to noon and 1 to 5 pm. All counseling services are confidential and are available to students without charge.

Extending the opportunities of higher education to the handicapped is a high priority at Wright State. We rank as a leader in adapted physical facilities, and campus buildings have been designed to be free of architectural barriers. Ramps and railings lead to each building and all buildings have elevator access to every floor. An underground tunnel system, linking most campus buildings, is particularly helpful to handicapped students.

Handicapped Student Services promotes the realization of each student's potential by offering services in physical, academic, personal and/or vocational areas. These services are provided on the basis of individual need, allowing severely physically disabled students to pursue college educations.

Physical support services are designed to enable each student to be as independent as possible and include personal attendant care for dressing and hygiene needs; adapted transportation for disabled commuter students; adapted campus parking; assistance in locating adapted off-campus housing; training in activities of daily living to achieve a greater degree of independence; campus mobility orientation for visually impaired students; adapted athletics and intramural sports, and performing theatre opportunities.

The academic support services are designed to assist severely disabled students in meeting all academic requirements through a combination of devices and methods which will prove useful in classes and in the years of future employment. These services include the tape library for the visually impaired and learning disabled; test proctoring for students having limited ability to write; and academic aids that accommodate individual disabilities in meeting class requirements.

The vocational program assists the student in making realistic occupational choices. Opportunities exist in the planning and development of a career and there are services designed to provide experience at various employment sites. These methods allow the student to make a realistic decision about future careers and ensure that the student is able to meet the demands of the occupation.

Applicants requiring services available for disabled students are strongly encouraged to contact Handicapped Student Services prior to admission to make arrangements for the necessary services.

Veterans who are seeking a degree and who attend school either full time or part time may be entitled to specific benefits. The Veterans Affairs office on campus can help you take full advantage of your educational benefits.

Medical care is available to students in the health clinic in Allyn Hall. (We recommend that you schedule appointments.) Personnel are on duty to handle emergencies during normal working hours, Monday through Friday. Students needing follow-up care will be referred to the Frederick A. White Center for Ambulatory Care. Student health insurance may cover some of the expense of this subsequent medical care. Student Health Services also sponsors preventive health care programs for
the university community, such as flu shots and hypertension testing, and community services including visits from the Community Blood Center. The Department of Security is the official law enforcement agency for the university campus. Information or complaints concerning any emergency or criminal activity should be reported immediately to the security dispatch center at campus telephone extension 2111.

Security is also responsible for the campus lost and found. If you lose or find an article, notify that office. Articles are held for ninety days and, if not claimed, are sold at an auction.

The Parking Services office establishes and regulates the procedures for parking on campus. If you park on campus, you must purchase a decal and park in the appropriate zone. Shuttle bus service is available between the lower campus C lot and Millett Hall.

Facilities

A good place to meet and talk with students, staff, and faculty is the University Center, which includes a cafeteria, private dining rooms, lounges, game rooms, box office, a rathskeller, a travel and recreation center, a faculty dining room and lounge, and a bookstore. The student-run University Center Board (UCB) schedules seminars, workshops, exhibits, guest speakers, artists, dances, tournaments, and recreation at the center. The facility can also be used for public activities on request. The Office of University and Community Events, which facilitates the planning of official university activities, is available to provide consultation on planning and coordinating special functions.

The Hollow Tree Box Office, managed by UCB, handles tickets for both university and community events.

The Activities Office, on the lower level of the center, is a part of University and Student Programming and serves as a resource to members of the university community in planning a wide range of community-related functions. The office also provides information about various types of entertainment and the availability of speakers.

The University Bookstore, owned and operated by the university, is located on the lower level of the center. It stocks textbooks and tradebooks used in Wright State classes as well as a variety of other books, supplies, and gift items. The bookstore also buys and sells used books each quarter.

For a limited number of students who want the convenience of living on or near the campus, the university provides one residence hall, Hamilton Hall, and an apartment complex. The residence hall has furnished rooms but lacks major cooking facilities; it houses both new and continuing students. Most of the rooms in Hamilton Hall are doubles, although some triple rooms are available at reduced rates. The university apartment complex near the campus contains both four-person furnished apartments and two-person efficiency apartments.

Certain minimum academic standards are required to live in university housing. All undergraduate students are expected to complete a minimum of thirty credit hours per year and maintain at least a 2.0 grade point average. Graduate students are expected to complete twenty credit hours per year. If you do not meet the academic requirements for on-campus housing, you may petition the Residence Life Advisory Committee for an exception.

Participation

Sports

For the sports-minded, the university has a well-developed program of intramural sports for men and women. The Department of Intramural Sports sponsors teams in touch football, basketball, bowling, swimming, wrestling, volleyball, and softball, and individual activities including table tennis, handball, badminton, golf, tennis, and archery. There are also open recreation periods when any student may use the physical education facilities.

Adapted intramurals introduce students who cannot take part in regular intramurals to a variety of recreational activities through an instructional approach. Rules and equipment are modified and activities such as archery, aquatics, billiards, bowling, and racquet squash, as well as individualized therapy programs, are taught.

We feel our intercollegiate athletic program benefits both the student and the university. Students can participate either actively or as spectators, and these sports serve as a link between the university and surrounding community.

The university is a member of Division II of the National Collegiate Athletic Association. Any full-time undergraduate student in good academic standing at the university who meets the requirements of the NCAA may try out for any of the varsity teams. Varsity teams for men include basketball (the major sport), wrestling, swimming, baseball, tennis, volleyball, and soccer. For women, there are varsity teams in basketball, volleyball, swimming, tennis, and softball.

The continued growth of the intercollegiate program has led to increased participation in national tournaments. Most men's sports have been represented at NCAA championship events. Wright State's baseball and basketball teams have regularly competed in Division II championships, and wrestling has achieved both individual and team successes in the past few years. Women's
volleyball and swimming have been represented at AIAW championship events, resulting in several all-American swimmers.

Grant-in-aid money is available in men's basketball, baseball, soccer, wrestling, and swimming and in women's volleyball, basketball, and swimming.

Intercollegiate Wheelchair Athletics provides sports and activities for students confined to wheelchairs. Such sports as basketball, swimming, and track and field are available on a competitive intercollegiate basis. Regional, national, and international games provide outstanding competition. Wright State is a member of the Central Intercollegiate Conference, the only intercollegiate conference for disabled student athletes in the world.

Music

The Department of Music's credit and noncredit instrumental and choral ensembles provide an opportunity to develop your musical talent, broaden your education, and make new friends. Ensembles are composed of students with various majors from many departments; you need not be a music major to participate. Some ensembles, however, require an audition. Most groups present one concert a quarter on campus as well as occasional off-campus performances.

There are two choral ensembles, the University Chamber Singers (between sixteen and twenty-four members) and the University Chorus (a seventy-five-to-ninety voice choir). They have performed with the Dayton Philharmonic Orchestra and the Wright State University/Community Orchestra. The Wright State University/Community Orchestra has approximately seventy-five members, about half university students and half townspeople. Concerto Night, presented each winter, features student soloists. The University Symphony Band and the University Concert Band rehearse Monday, Wednesday, and Friday from noon to 12:50 pm. Instruments are available, and no audition is required for the Concert Band. Other groups include the University Jazz Ensemble, the University/Community Trombone Ensemble, and the University Brass Choir.

The Collegium Musicum is a group of music lovers who study and perform vocal and instrumental music composed between 1100 and 1800. Other student ensembles may be formed depending upon interest, enrollment, and faculty availability.

Community Music Division

Students and residents of the Dayton area have a variety of opportunities for musical growth and exploration in the noncredit Community Music Division of the Department of Music. A ten-week program of noncredit classes and private lessons is
given each quarter. Classes include Beginning Piano, Voice, and Basic Musicianship.

Private lessons are available in most orchestral instruments, as well as classical guitar, folk guitar, harp, and voice. These lessons are taught by faculty, faculty associates, advanced teachers, and selected university students majoring in music. Students must provide their own instruments. Lessons are scheduled by the teacher in consultation with the student, at a time that is mutually acceptable.

The Wright State University Show Choir is jointly sponsored by the Community Music Division and the WSU Alumni Association. A vocal ensemble of sixteen-to-twenty-four university students, they perform jazz, popular, and show music with choreography. An audition is required.

Organizations and Activities

Many opportunities for extracurricular involvement exist through participation in student organizations, clubs, and activities. Departmental clubs allow you to delve into a particular area of study or career field, and several academic departments sponsor honoraries. Fourteen chapters of Greek letter fraternities and sororities offer service, social activities, and friendship. Sports, religious, and special-interest clubs provide many avenues for exploring your interests with a group.

Inter-Club Council (ICC) is made up of representatives from the various student organizations on campus. Any student organization registered with the Office of Student Development can be a member of ICC. Its purposes are to develop cooperative campus activities and to provide communication among the different student groups. Each year ICC sponsors October Daze, homecoming activities, Winterfest, and May Daze, which give member organizations a chance to have money-making projects and recruit new members.

For students who wish to put their creative talent to work, there are several student media outlets on campus. The student newspaper, The Daily Guardian, which utilizes editors, writers, proofreaders, salespeople, and photographers, is published four times a week during the academic year. The magazine Nexus comes out two times a year and includes writing and original art work from members of the university community. Chimaera, issued two or three times each year by the University Honors Program, features a wide range of undergraduate writing: essays, book reviews, research papers, poetry, and short fiction are invited for consideration. Students can also work on and off the air at the student-run campus radio station, WWSU.

Many cultural opportunities on campus allow you to both see and participate in the performing arts. The Department of Music presents many concerts and recitals by student and faculty soloists and choral and instrumental groups. University Theatre presents six major productions, several one-act plays, and at least one children's theatre production during the academic year. The theatre department has also offered a motion picture series and the University Center Board sponsors many current popular films, concerts, speakers, and cultural events. The University Art Galleries regularly schedule exhibitions and events, both in the Main Gallery and the Experimental Gallery.

Representation

The Student Government is an elected representative student assembly which officially acts on behalf of the student body. Student Government members represent the students through Academic Council and on major committees of the council. Student Government consists of nine students: four from the undergraduate colleges; one each from the School of Nursing, School of Medicine, School of Graduate Studies, and School of Professional Psychology; and one at-large member who serves as chair.

The Academic Council is the major decision-making body of the university, consisting of representatives from the faculty, administration, and Student Government. It deals with academic regulations, curriculum changes, and other university-wide policies. Students who don't know where to take a grievance, problem, or suggestion can go to the Office of the Ombudsman. The ombudsman provides accurate information about the university, investigates and tries to resolve student problems, and makes students' concerns known to the faculty and administration.
Admission/Registration/Costs
Three offices at the university that you will probably have a lot of contact with are the Offices of Admissions, the Registrar, and Financial Aid.

The staff of the admissions office assist prospective and returning students by providing information about the university, its academic programs, and undergraduate and graduate admissions.

Staff members also help students complete the application for admission. The office arranges individual and group tours of the campus and can make appointments for students to talk with faculty or advisers in the academic areas in which they’re interested.

Included among the duties of the Office of the Registrar are registering students in classes and assessing fees, processing class withdrawals, obtaining fee refunds, accepting applications for graduation, processing grade reports, and issuing academic transcripts to students who request them.

The Office of Financial Aid helps students who have difficulty in meeting the costs of a college education. Although we feel the student and the student’s family are primarily responsible for financing a college education, we realize there are many reasons a student’s financial resources may be limited.

To assist students who have established financial need, the university offers scholarships, grants-in-aid, loans, and employment. For applications for the various types of financial assistance, contact the Office of Financial Aid.

Admission

Ohio students who have graduated from an accredited high school or who have passed a high school equivalency test (GED) are automatically eligible to enter Wright State University. Out-of-state students, however, besides meeting regular admission requirements, must present evidence of above-average ability to do college work (a 2.0 overall high school grade point average).

Degree-Seeking Students

Freshmen

If you’re beginning college work at Wright State with the intention of earning a degree, the procedures for applying are simple. First, get an application form from the Office of Admissions, complete it, and return it with the nonrefundable $25 application fee. Then have your high school send a transcript of your grades to Wright State.

National test scores are not a requirement for admission. You must, however, have either the American College Testing Service score (ACT) or the Scholastic Aptitude Test score (SAT) on file with the University Division before you register for classes.

Placement Testing/New Undergraduates

During each registration period, the University Division conducts placement testing in mathematics, reading, and writing for undergraduate students new to the university.

Mathematics

All students preparing to enroll for their first mathematics course in higher education are required to take a mathematics placement examination to determine course enrollment. Transfer students with earned credit in mathematics at a C grade or above need not take the exam.

Reading and Writing

Beginning degree-seeking freshmen also are required to take reading and writing placement examinations unless as part of their admission process they submit to the university a score of sixteen or above on the English section of the American College Test Assessment (ACT) or a score of 360 or above on the Scholastic Aptitude Test (SAT). Transfer students with earned credit in English composition at a C grade or above need not take the exam.

A placement test schedule is available in the Office of Admissions, 127 Student Services.

Transfer Degree Students

If you have registered for one or more courses at another college, you are considered a transfer student. To apply for admission, you need to complete the application and return it to the Office of Admissions with the nonrefundable $25 application fee. You must have an official transcript from each college in which you’ve been registered sent to the Office of Admissions. If you have less than twelve quarter hours of transfer credit, you must also submit a high school transcript or GED scores. All transfer students interested in the School of Nursing who are not already RNs are required to submit a high school transcript. All transfer students with at least a C average are eligible for admission to the university; admission to some colleges and schools requires a higher grade point average. If you do not meet the grade point average criterion, you must petition for admission. This petition process involves completing both the application form and the petition form (available from the Office of Admissions) plus submitting the nonrefundable $25 application fee and the required transcripts as indicated in the preceding paragraph. If you have been suspended from another institution, you will normally not be considered for admission to Wright State for one calendar year. In the case of unusual circumstances, you may appeal to the University Admissions Committee to have the one-year waiting period reduced.
Transfer Credit Regulations

1. Your credits must have been earned at an institution which is regionally accredited, an Ohio state-assisted institution of higher education, or a member of the Dayton-Miami Valley Consortium, or an institution of equivalent quality (as determined by Wright State).

2. You must have earned a grade of C or higher (according to the definition of grades currently used at Wright State). Grades of "pass" and "credit" are considered for transfer credit.

3. The credits must have been acceptable for satisfying the graduation requirements at the source institution.

4. Any credits earned through correspondence study or as a part of an off-campus study program are subject to the same regulations as other transfer credit.

5. If the credits were earned more than ten years before your admission to Wright State, your adviser will determine if the credits are still applicable to your degree.

6. If you have completed three-fourths or more of the Wright State quarterly credit hour requirement for a course or sequence, you may receive credit for that course or sequence. For example, two 3.0 credit hour courses in English composition may be considered the equivalent of ENG 111 and 112 (eight credit hours).

7. Your Wright State academic adviser will determine how your transfer credits are to be used toward the requirements for your major. If there are exceptions to the transfer credit rules, the dean of the major college or school involved will make the decision.

8. If you have earned twenty-four quarter credit hours or less of transfer credit, you will be assigned to the University Division (the freshman advising office) for advising. If you have earned more than twenty-four hours, the Office of Admissions will notify you of your admission to the University Division or the appropriate college or school.

9. General Education requirements for most transfer students will be determined by a course-by-course evaluation. Transfer students with an Associate of Arts degree usually have fulfilled the General Education requirements, but each college will determine if there are any deficiencies. For specific exceptions that apply in the School of Nursing and the College of Business and Administration, see the appropriate sections of this catalog.

10. The university will accept a minimum of ninety credit hours for an associate degree from a regionally accredited (see Transfer Credit Regulation #1) junior or community college. Also, credit is usually given for all academic college credit hours above ninety for which a grade of C or better has been earned.

11. If you have already received a baccalaureate degree from an accredited institution (see Transfer Credit Regulation #1) and wish to pursue a second baccalaureate degree, you will automatically receive 138 quarter credit hours. You will be ranked as a senior. Your adviser will determine how many credits you will have to complete to receive your second degree.

12. All religion courses taught by a religion department in any state college or university will be considered for transfer credit. These courses are subject to other applicable Transfer Credit Regulations. Religion courses taught by all other colleges must be approved by the religion department before transfer credit is granted.

International Students

Wright State welcomes applications from qualified international applicants. About 140 students on F-1 visas currently attend the university. You may request application materials from the Office of Admissions. Applications for admission must be completed before the end of the open registration period for the quarter in which you wish to begin studies at Wright State.

International applicants are expected to meet the following criteria for admission:

1. Undergraduate applicants must have an educational background that is equivalent to a high school diploma from the state of Ohio. Graduate applicants must have earned a baccalaureate degree or its equivalent from a college, university, or other institution of higher learning. Only an official transcript, translated into English, will be accepted as evidence of academic preparation. If your credentials cannot be evaluated by the Office of Admissions, you will be required to submit your credentials to an evaluation service and pay the cost of the evaluation.

2. All international applicants must demonstrate proficiency in English. If your native language is not English, the Test of English as a Foreign Language (TOEFL) is required; a minimum score of 500 is required for admission. Non-native English speaking students will also be tested in English upon arrival at Wright State and required to enroll in appropriate English courses if the testing so indicates.

3. Since there is no financial assistance available for the undergraduate international student, the university must be assured that all international applicants have adequate
financial resources to attend Wright State. If you are being sponsored, the financial statement form must be accompanied by an affidavit of support and a bank statement provided by your sponsor, indicating the amount of money available to you for the purpose of studying at Wright State University.

If you are financing your education from personal funds, you must also submit a bank statement together with the financial statement. Bank statements are to be sent by the bank directly to the admissions office.

International students, once admitted, may be required to deposit with the university a full year’s tuition before they will be permitted to enroll in classes.

4. Form I-20 will be issued by the international student adviser when you have met the above requirements and have been admitted to the university.

5. International students already in the United States who wish to transfer from another university will not be considered for admission if they are not currently in status according to the Department of Immigration and Naturalization. The transfer student must also present evidence of above-average ability to do college work.

Other Admission Categories

Nondegree Undergraduate Students
If you want to take courses at Wright State but you don’t intend to work toward a degree at this time, you can register as a nondegree student. You may take as many courses as you like as long as you meet the requirements for each course. To be eligible to register as a nondegree student, you must have graduated from an accredited high school or passed a high school equivalency test (GED). In order to take junior- or senior-level courses offered by the College of Business and Administration, you must have junior standing in addition to the stated prerequisites.

To apply, you need only fill out a simple application-registration form and pay a $10 one-time registration fee. Later, if you decide to enter a degree program, you can file your credentials and pay an additional $15 application fee. Nondegree work normally can be applied toward a degree program.

Nondegree students may receive academic advising from the University Division and may participate in any of the services of the division, including tutoring and developmental education courses.

For information about nondegree status for graduate students, see the Graduate Catalog.

Certification Candidates
If you are a college graduate who would like to become certified as a teacher, you must apply for admission, file all the necessary credentials, and pay the application fee. We recommend that you meet with a teacher certification advisor when you apply, to have your records evaluated and to plan your program.

Undergraduate students and students who receive degrees from other colleges within the university may also obtain teaching certificates upon completion of all the requirements of the College of Education and Human Services.

Superior High School Students
High school students who have completed their junior year and who are either in the top fourth of their class or have a 3.0 overall grade point average may take courses at Wright State while still enrolled in high school. To participate, you must be recommended by your principal or counselor and present written permission from your parent or guardian. High school students who plan to continue at Wright State begin as degree students; those who plan to continue their education elsewhere begin as nondegree students. If you would like to know more about this program, contact the Office of Admissions.

Returning Students
If you have not attended Wright State for more than four quarters, you must apply for readmission through the Office of Admissions. There is no additional application fee and official transcripts are required only from the schools you have attended since you left Wright State.

If you have been dismissed, you may apply for readmission after remaining out of school for three quarters, by petitioning the University Admissions Committee.

If you have not attended Wright State for five years (twenty quarters), you may wish to take advantage of the Fresh Start Rule. This rule may allow you to have your earlier GPA recalculated. Contact the Office of Admissions for more information.

Registration
Wright State is on the quarter system. The academic year is divided into three quarters (fall, winter, and spring) and a summer session (two five-week terms or one ten-week term). Classes are assigned values in quarter credit hours. The credit hour is based on fifty minutes of instruction each week for one quarter, although there are exceptions. Laboratory courses usually require considerably more time for each quarter hour of credit. The general rule for time expenditure is that
you should plan to spend at least two hours in outside preparation for each hour you spend in class. You should carefully plan your academic program with an adviser, especially if you’re also working while going to school. However, you are responsible for registering in appropriate classes, scheduling, and fulfilling all university and program requirements for graduation.

The minimum full-time undergraduate load is twelve credit hours per quarter with the average between fourteen and seventeen credit hours. The normal full-time load during each five-week summer term is between six and nine credit hours.

If you’re employed full time, we recommend that you register for no more than six quarter hours, or two courses, during the regular academic year and for just one course at a time during the summer.

Registration dates are announced in the quarterly schedule of classes. Currently registered students receive their registration forms in their campus mailboxes, located in the lounge of Allyn Hall. Students who are not currently registered, but who have been registered any time during the past year, receive their registration forms in the mail.

There are three different registration periods. If you take advantage of the early registration period, there is a specific deadline for paying your fees. That deadline date is published in the quarterly class schedule. If you don’t pay by the deadline, your registration will be cancelled to make room for students who register later. During open registration you must pay fees at the time you register. Late registration allows you to register during the first week of classes; there is an additional fee for late registration. You cannot register after the first week unless you have the permission of the instructor, department chair, and the school or college dean. No one may register after the second week of the quarter.

To make a change in your registration, you must first submit a Change of Program form to the Office of the Registrar and pay the appropriate fee. There is no fee for adding courses or for withdrawing from all your classes at any time. No fee is charged if you make changes before classes begin.

You may drop a course or withdraw from the university without grades up to the dates specified in the university calendar. These courses won’t be recorded on your transcript. After the withdrawal date, you need to petition to drop; otherwise, the course will appear on your record.
## Fees

### Quarterly Fees for Undergraduate Students

<table>
<thead>
<tr>
<th></th>
<th>Main Campus</th>
<th>Western Ohio Branch Campus</th>
<th>WSU Extension/Piqua</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 through 10.5 hours/per hour</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruction and general fee</td>
<td>$ 51</td>
<td>$ 46</td>
<td>$ 43</td>
</tr>
<tr>
<td>Nonresident tuition/add to above</td>
<td>51</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>Total: Ohio resident</td>
<td>51</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>Total: Nonresident</td>
<td>102</td>
<td>92</td>
<td>86</td>
</tr>
<tr>
<td><strong>11 through 18 hours</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional fee</td>
<td>$433</td>
<td>$432</td>
<td>$432</td>
</tr>
<tr>
<td>General fee</td>
<td>108</td>
<td>51</td>
<td>18</td>
</tr>
<tr>
<td>Nonresident tuition/add to above</td>
<td>541</td>
<td>541</td>
<td>541</td>
</tr>
<tr>
<td>Total: Ohio resident</td>
<td>541</td>
<td>483</td>
<td>450</td>
</tr>
<tr>
<td>Total: Nonresident</td>
<td>1082</td>
<td>1024</td>
<td>991</td>
</tr>
</tbody>
</table>

* The hourly rate applies to all credit hours in excess of 18.

### Additional Fees and Charges

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Main Campus</th>
<th>Western Ohio Branch Campus</th>
<th>WSU Extension/Piqua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late registration fee/all students</td>
<td>$ 25</td>
<td>$ 25</td>
<td>$ 25</td>
</tr>
<tr>
<td>Nondegree application fee</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Audit fee/per credit hour (laboratory and special courses not open to audit)</td>
<td>same as for credit courses</td>
<td>same as for credit courses</td>
<td>same as for credit courses</td>
</tr>
<tr>
<td>Drop fee (one course/two or more courses)</td>
<td>7/10</td>
<td>7/10</td>
<td>7/10</td>
</tr>
<tr>
<td>Fee for courses under Educational Benefits Policy or with Registration Fee Certificate/per credit hour</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Transcript fee/first request each additional at same time fifty cents</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Undergraduate and graduate degree student and certification student application fee</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Returned check penalty/per check</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Proficiency test/per credit hour</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Graduation fee</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>International student fee</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

Some courses may require additional fees to cover travel, individual instruction, or materials; check the course descriptions in this catalog and the departmental offices.

Fee schedules are subject to change depending on action by the state legislature and approval by the Ohio Board of Regents and the University Board of Trustees. The quarterly fees listed here for the main campus, Western Ohio Branch Campus, and Wright State University Extension/Piqua are those in effect when this catalog went to press. For an up-to-date list, you should consult the Office of the Registrar.

Everyone who parks a vehicle on campus is required to purchase a decal. Parking fees and decal information are given in the quarterly schedule of classes.

Library fines are set by the university librarian with the approval of the president.

Wright State University will not defer payment of fees or accept partial payments.
Paying Fees

The method for paying fees depends on which registration period you use. See the previous section on registration for a description of the different registration periods.

Students who register early will find fee payment deadlines in the university calendar published in the quarterly schedule of classes. If you do not pay registration fees by the deadline, your registration may be cancelled. If you do not register early, you must pay all fees and charges at the same time that you register. No registration or payment is accepted after the first week of classes without the proper approval.

Any payment made with a bad check may result in your registration being cancelled. The bursar assesses a charge to reprocess any payment previously made with a bad check. These charges must be paid on the day of reprocessing. Fee assessments can be audited at any time during your enrollment or academic career. If you don't make acceptable arrangements to pay the amount due within thirty days after notification, you will have your current registration cancelled.

The university does not defer fee payments or accept partial payments. For an additional receipt, it is to your advantage to pay fees by check or money order, made payable to Wright State University and sent to the attention of the Office of the Bursar. The check or money order should be written for the exact amount due. Incorrect checks will promptly be returned to you and registration will proceed on schedule if a new check or money order for the correct amount is received by the published deadline date for payment of fees.

Students taking courses under the Educational Benefits Policy or using Registration Fee Certificates pay twenty percent of the hourly tuition rate. The Educational Benefits Policy applies only to undergraduate and master's level coursework.

You may also use either VISA or MasterCard credit cards to charge tuition and other fees normally paid to the university. You must either be the cardholder or have your parents' authorization to use their card. All charge transactions are subject to approval by the bank.

A current schedule of refunds can be found in the quarterly schedule of classes. If a class is dropped before the quarter begins, there is a one hundred percent refund. An eighty percent refund is available during the first two weeks of classes; no refunds are obtainable after that time. Refunds are made only through the registrar's office. Refunds will be determined as of the date of official withdrawal, unless proof is submitted of circumstances beyond control of the student (e.g., hospital confinement) which prevented the filing of the official withdrawal form earlier. In such a case, the refund will be determined as of the date of said circumstances. Refunds or reductions of indebtedness for withdrawals after the official dates in cases of failure or inability to attend classes because of changes in business (e.g., work schedule) or personal affairs (e.g., illness) will not be made.

Criteria for Ohio Residency

Students who are nonresidents of Ohio must pay a nonresident fee in addition to other fees and charges.

The following general rules, established by the University Board of Trustees, determine who can be considered an Ohio resident and cite specific exceptions to the general rules.

Persons in the following categories are classified as residents of the state of Ohio for subsidy and tuition surcharge purposes.

1 Dependent students, at least one of whose parents or legal guardian has been a resident of the state of Ohio for all other legal purposes for twelve consecutive months or more immediately preceding the enrollment of the student in an institution of higher education.

2 Persons who have resided in Ohio for all legal purposes for at least twelve consecutive months preceding their enrollment in an institution of higher education and who are not receiving, and have not directly or indirectly received in the preceding twelve consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.

3 Persons who reside for all legal purposes and are gainfully employed on a full-time or part-time and self-sustaining basis in Ohio and who are pursuing a part-time program of instruction at an institution of higher education.

Specific exceptions and circumstances include:

1 A person on active duty status in the United States military service who is stationed and resides in Ohio and his or her dependents shall be considered residents of Ohio for these purposes.

2 A person who enters and currently remains upon active duty status in the United States military service while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of that person's domicile.

3 Any alien who holds an immigration visa or is classified as a political refugee, shall be considered a resident of the state of Ohio for
Admission, Registration, Costs

state subsidy and tuition surcharge purposes in the same manner as any other student.

No person who holds a student or other temporary visa shall be eligible for Ohio residency for these purposes.

A dependent person classified as a resident of Ohio who is enrolled in an institution of higher education when his or her parents or legal guardian remove their residency from the state of Ohio shall be considered a resident of Ohio for these purposes during continuous full-time enrollment and until his or her completion of any one academic degree program.

In determining residency of a dependent student, removal of the student's parents or legal guardian from Ohio shall not during a period of twelve months following such removal constitute relinquishment of Ohio residency status otherwise established under this rule.

Any person once classified as a nonresident, upon the completion of twelve consecutive months of residency in Ohio for all other legal purposes, may apply to the institution he or she attends for reclassification as a resident of Ohio for these purposes. Should this person present clear and convincing proof that no part of his or her financial support is or in the preceding twelve consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, this person shall be reclassified as a resident. The institution may require, among other things, the submission of information regarding the sources of a student's actual support to that end.

Any reclassification of a person who was once classified as a nonresident for these purposes shall have prospective application only from the date of the reclassification.

A person who is transferred by his or her employer beyond the territorial limits of the fifty states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.

A person who has been employed as a migrant worker in the state of Ohio and his or her dependents shall be considered a resident for these purposes provided such person has worked in Ohio at least four months during each of the three years preceding the proposed enrollment.

Financial Aid

The Office of Financial Aid makes every effort to assist students who would be unable to attend school without receiving some form of financial aid. If you feel you need help in financing your education, you should apply for assistance through the following programs. If necessary, you should meet with a financial aid staff member to arrange an appropriate financial aid package.

Grants are forms of gift aid which are not repaid. They are available to undergraduate students and are based on financial need. The Ohio Instructional Grant is available to students who are residents of the state of Ohio and attend college full time. You must apply directly to the Ohio Board of Regents by completing a separate Ohio Instructional Grant application.

Students carrying at least six credit hours are eligible to apply for the Pell Grant (formerly the Basic Educational Opportunity Grant) and Supplemental Educational Opportunity Grants. In order to be considered for the Pell Grant, you must complete either a separate Pell Grant application or a Financial Aid Form (FAF). The Supplemental Grant requires the completion of the Financial Aid Form and the Wright State application for financial aid.

Scholarships are forms of gift aid which are not repaid and may be based either on academic excellence or on both academic excellence and financial need. The Wright State University Foundation Scholarships are awarded solely on the basis of academic excellence, potential, and leadership qualities. They are available to incoming students, transfer students, continuing undergraduates, and graduate students. Special applications may be obtained from high school counselors or the Wright State University Office of Financial Aid. Need-based scholarships are based on academic performance and financial need. To be considered for such scholarships, you must complete the Wright State application for financial aid and the Financial Aid Form. Army and Air Force ROTC programs also offer scholarships; contact those departments for details.

Loans, which are repaid starting six months after graduation or termination of half-time (six hours) studies, are available to both undergraduate and graduate students. You can apply for the low interest (four percent) National Direct Student Loan by completing the Financial Aid Form and the Wright State application for financial aid. Applications for the Guaranteed Student Loan, which has a nine percent interest rate, may be obtained from a commercial lending institution, such as a bank. Students who are officially admitted to the School of Nursing are eligible to apply for the Nursing Loan. The Nursing Loan has a six percent interest rate and repayment begins nine months after graduation or termination of half-time
Admission, Registration, Costs

(six hours) studies. The Financial Aid Form and the Wright State application for financial aid are necessary in order to be considered for this loan.

The university has established a short-term loan fund to help students with emergencies. This program allows you to borrow up to full tuition for the quarter for fees or up to $100 per quarter for books and personal expenses. To qualify, you must have at least a 2.0 cumulative grade point average, have attended Wright State before the loan request, and have a cosigner (for the first request). There are also loans from private foundations and other sources. These loans have various stipulations and regulations for qualifying.

Student employment is available to students who wish to work to help finance their education. You can obtain information about job opportunities through a centralized Student Employment Service, located in the Office of Student Employment.

Students may be employed through the federally funded College Work-Study Program or the regular employment program. The Financial Aid Form and the Wright State application for financial aid must be completed for consideration for College Work-Study. There are no financial restrictions placed on students who wish to work under the regular employment program. Student employees may work no more than twenty hours per week while classes are in session and up to forty hours per week during breaks.

Financial aid is granted on a three-quarter basis (summer financial aid requires separate applications). In order to be considered for aid on a continuing basis, you must apply each year that you plan to attend and maintain satisfactory academic progress.

You should submit applications and financial statements by March 15 to ensure consideration for the maximum amount of financial assistance.

Veterans and their dependents should check with the Veterans Affairs office to determine benefits to which they are entitled. Tutorial assistance is available to students who are receiving benefits under Chapters 31 (vocational rehabilitation) and 34 (regular G.I. Bill benefits). Assistance is given to vocational rehabilitation students according to need while Chapter 34 benefits are limited to a maximum of $69 per month with a total maximum payment of $828 throughout the entitlement period.
Academic Standards and Requirements
The university has several requirements which must be met by every candidate for a bachelor's degree, including the following: you must complete a minimum of 183 hours of credit in approved courses, earn a cumulative average of 2.0 or better, complete the General Education requirements, and fulfill the university's on-campus credit regulations. In addition, you must meet the requirements of your college or school and department.

Students must meet the university's graduation requirements current at the time they enter the university or, if they have been enrolled continuously, they may choose a subsequent set of requirements which becomes effective while they are pursuing studies at Wright State.

The student is responsible for registering in appropriate classes, scheduling, and fulfilling all university and program requirements for graduation. Students are encouraged to contact advisers in the University Division or colleges and schools for information and guidance in formulating their program of study.

The residence requirements which must be met to receive a baccalaureate degree from Wright State include: a minimum of forty-five hours of course work at Wright State; at least fifteen of the last forty-five hours of credit must be taken at Wright State; and a minimum of thirty hours of courses numbered 300 or above are to be taken at the university.

If you hold a baccalaureate degree from an accredited institution, including Wright State, and wish to earn a second baccalaureate degree at Wright State, you must satisfy the requirements of the department and college from which the second degree is to be received. At least the last forty-five hours of course work are to be taken at Wright State, twenty-three of which must be in courses numbered 300 and above. These forty-five hours are in addition to the minimum 183 required for the first degree.

### University Honors Program

A special honors curriculum includes courses that can be counted toward the university's General Education requirements, as well as interdisciplinary seminars for upper division honors students. Students may also undertake honors programs in their major fields; these are usually available in the junior and senior years and feature independent study in specialized areas.

Students who successfully complete any five General Education honors courses, complete one course from the UH 201, 202, 203 sequence, satisfy an honors program in the major field, and participate in two university honors seminars are awarded the distinction "University Honors Scholar" when they graduate. Those who complete departmental, school, or college programs, but not the General Education or seminar requirements, graduate "with honors" in their major fields.

You qualify for admission to the University Honors Program if you score above the ninetieth percentile on the ACT, rank in the top ten percent of your high school graduating class, have earned a grade point average of 3.25 or higher in high school, or have earned a 3.0 or higher at an accredited university. You may also apply with the recommendation of someone who can evaluate your prior academic work or academic promise.

To enroll in an honors program in your major field, you need the approval of the appropriate department, school, or college. For applications and further information, contact the University Honors Program Office.
Scholastic Regulations

The Academic Council at Wright State has formulated the following regulations and procedures concerning scholarship and advising at the university.

The Grading System

Your academic achievement is indicated by the following letter grades and points used in calculating grade point averages.

- **A**: Highest quality / 4 points per credit hour
- **B**: Second quality / 3 points per credit hour
- **C**: Third quality / 2 points per credit hour
- **D**: Lowest quality / 1 point per credit hour
- **F**: Failed / 0 points per credit hour
- **X**: Failure to complete a course for which registered, without officially withdrawing / 0 points per credit hour

Your Wright State grade point average is obtained by dividing the number of points you’ve earned at Wright State by the total number of hours you’ve attempted, excluding the following symbols, which appear on your record but are not used in computing grade point averages.

- **L**: Audit; given only if arranged when you register.
- **N**: No report; the Instructor did not report a grade.
- **P**: Passing; given only for separately approved courses.
- **S**: Satisfactory performance; final grade assigned upon completion of the project.
- **U**: Unsatisfactory performance.
- **I**: Incomplete; given only when part of required work is missing and arrangements have been made with instructor to complete the work. If the work is not completed by the end of the following quarter, the I grade automatically is considered equivalent to an F and the grade point recalculated, unless the instructor submits another I grade. Work for an incomplete received spring quarter does not have to be completed until the end of the following fall quarter.
- **T**: Attended; this grade is used only for honors courses. These hours are not counted toward graduation.

Grade reports are sent at the end of each quarter to the addresses on file in the registrar’s office. If you notice any discrepancy on the report, contact the Office of the Registrar within thirty days.

Academic Standing

Students who attain high grade point averages during a quarter are placed on the Dean’s List. To be named to the list, you must have at least a 3.4 grade point average for the quarter; have attempted for the quarter at least twelve hours of credit for courses in which you have received grades of A, B, or C; and you cannot have received a grade of F, X, D, I, or N. The categories for the Dean’s List are: 3.4-3.4999, honors; 3.5-3.999, high honors, and 4.0, highest honors.

An undergraduate student may repeat once any course for which the grade of D, F, or X was received.

You may repeat once some courses taken previously in your major field for which you received a grade of C if you have prior permission from your adviser and the approval of the college or school petitions committee, along with the concurrence of the University Student Petitions Council.

Whenever you repeat a course under these terms, you must specify this on the course registration form when you register. Under these circumstances, only the hours and grade points earned the second time you take the course will be included in computing your grade point average and applying the course toward meeting degree requirements.

Your cumulative grade point average at the end of the quarter will reflect the drop of previous hours and grade points of the repeated course. However, all grades and grade point averages and academic actions for earlier terms will remain unchanged on your record. In the calculation of cumulative grade point averages for honors, each of your recorded grades will be counted.

This regulation is concerned only with academic credit; the limitation relates to the number of times you can receive credit hours and grade points for the same course. It in no way places limits on your learning experience, and you may take a course as often as you wish for the content or prerequisite requirements.

You may not repeat a course after graduation in order to alter your final grade point average at the date of graduation. You may repeat a course later, but the second grade will not affect your undergraduate grade point average.

If class space permits, you may audit a course with written approval from the instructor before you enroll. The amount of participation required of an auditing student is left to the discretion of the instructor, but it can’t exceed that required of regular students. Audited courses may not be used to establish full-time status, and you may not change your registration from audit to credit after the first class meeting.

Undergraduate students are classified by the total number of credit hours earned at Wright State plus any transfer credits that have been accepted by the university.

- **Freshman**: 0-44.9 hours
- **Sophomore**: 45-89.9 hours
- **Junior**: 90-135.9 hours
- **Senior**: 136 hours or more

Before you graduate, you must submit an application for a degree. The following filing
periods, based on your anticipated date of completion (indicated in parentheses), have been established by the university.
September 1 to October 1 (December)
December 1 to January 15 (March)
February 1 to March 1 (June)
May 1 to June 1 (August)

If your degree requirements are not completed in time, you must file another application for a later completion date.

Students who complete their degree requirements during winter or spring quarters receive their diplomas at the June commencement. Those who complete their degree requirements during summer or fall quarters receive their diplomas at the December commencement.

Undergraduate students who compile outstanding academic records are recognized at commencement. Honors are based on the following:

summa cum laude recognizes a cumulative grade point average of at least 3.8;
magna cum laude, a cumulative grade point average of at least 3.6; and

cum laude indicates a cumulative grade point average of at least 3.4.

Honors are calculated on the basis of your grade point average as of the date of graduation. Change of grades or removal of incompletes (I) from your record will not be considered for higher honors, but they can be considered if the change would lower the honors awarded.

To be eligible for honors at graduation, you must have completed at least ninety credit hours at Wright State.

Students deemed eligible to continue study at Wright State are considered to be in good standing, even if they are on warning and/or mandatory advising. The registrar takes action placing a student on warning and/or mandatory advising. Dismissal action is taken by the dean of the student's college or school. Scholastic actions are determined on the basis of quarter hours computed in the Office of the Registrar. Since credit hours for transfer, proficiency, and grades of S, P, and I aren't used in computing quarter and cumulative averages, they are not considered in determining scholastic action.

A student carrying nine or more credit hours in any quarter is subject to scholastic action. A student carrying fewer than nine credit hours is subject to scholastic action at the close of the quarter in which the total credit hours completed or attempted reaches or exceeds twelve and then at the completion of each quarter thereafter in which a similar twelve-hour increment is attained.

A student is placed on warning whenever the quarter grade point average is less than 2.0. A student on warning is continued on warning if either the cumulative or quarter grade point average (but not both) is below 2.0.

When students are placed on warning and are so informed, they are assigned an academic adviser, if they don't already have one, by their college, school, division, or department. It will be recommended that they seek advice from the adviser as long as they are on warning. It may be recommended that students seek counseling and/or remedial assistance, limit the course load and/or the nature of their courses, restrict outside employment, and/or have their course selections approved before registration.

A student on warning is placed on mandatory advising if both the quarter and cumulative averages fall below 2.0. A student will be continued on mandatory advising until both the cumulative and quarter grade point averages are 2.0 or above. Whenever a student brings both the quarter and cumulative averages up to at least 2.0, he or she is removed from both warning and mandatory advising.

A student on mandatory advising status must have course selections approved by the adviser before registering for classes. The adviser's approval will also be necessary for any drop-add transactions. The student may be required to pick up the registration form from the adviser, and may also be limited to a twelve-hour load if the adviser feels such a restriction is necessary. Counseling, remedial work, course repeats, and other steps may be suggested. In addition to working with the adviser, the student will be under review by the department chair.

A student who has been continued on mandatory advising may be dismissed from the university if it is apparent he or she will not be able to raise the cumulative grade point average to the 2.0 required for graduation. This action may be taken by the student's academic dean in consultation with the chair of the student's major department and the student's adviser.

At the end of each quarter, deficiency points will be calculated by the registrar for all students on mandatory advising. Deficiency points are defined as the number of points a student would need in order to raise the cumulative point hour ratio to 2.0. A student with a point hour ratio greater than 2.0 is said to have no deficiency points. Deficiency points are calculated by subtracting the number of points earned from twice the number of credit hours attempted for the grades A, B, C, D, F, or X.

Students on mandatory advising will be advised in writing by their college or school of their deficiency points and the conditions they must meet to remain at the university.

Notice of dismissal from the university will be sent directly to the student by the dean of the college or school in which the student is registered.

A student who has been dismissed will not be permitted to enroll for any courses at the university.
for a period of one year, and until he or she has been reinstated by a college, school, or the University Division.

A student must submit a written request for reinstatement. Readmission is not automatic. A student may petition to waive the last three quarters of the dismissal period. Petition forms may be obtained from and submitted through the Office of Admissions. The petition is reviewed by the College Petitions Committee. A student whose petition is approved is continued on mandatory advising.

A student who is reinstated following an academic dismissal is subject to any special requirements which may be determined appropriate by the dean of the college in consultation with the faculty.

Exceptions to scholastic regulations may be petitioned to the University Undergraduate Student Petitions Council. Petition forms are available in most academic department offices. These forms are filed in the registrar’s office.
University General Education requirements must be completed in order to graduate with a baccalaureate degree. The purpose of these general studies is to broaden students' knowledge and outlook on life and to increase their understanding of our cultural heritage.

Students must fulfill specific university General Education requirements in each of three areas—English composition; laboratory sciences; and social sciences and humanities. The specific requirements for each area, and the courses which can be used to meet each area's requirements, follow. See the program of study description of your intended major for exceptions to the General Education requirements.

Area One—English Composition
Two courses, to be taken in sequence and completed by the end of the sophomore year: English 111 and 112.

Area Two—Laboratory Sciences
A three-course sequence in one science, to be chosen from:
- Biological Sciences 101, 102, and 103; honors sections only of 111, 112, and 114
- Chemistry 101, 102, and 103
- Geological Sciences 101, 102 (with corresponding laboratory units 104, 105), and 103; honors sections only of 111, 112, and 113
- Physics 121, 122, 123, 124, and 125 (with corresponding laboratory units 131, 132, 133, 134, and 135)
- University Honors 203 (This course may replace the third quarter of any of the above-listed sequences for General Education purposes only. It does not replace the third quarter of a sequence required in the major. Restricted to University Honors students.)

Area Three—Social Sciences and Humanities

Group A—Social Sciences
Group B—Humanities
Twenty-seven hours are required. Groups A and B each require a minimum of nine hours. You may select courses from more than one department and you may take from nine to eighteen hours in one group and the rest in another group.

Group A—Social Sciences
- Nine hours minimum required.
- Anthropology 140, 141, and 142
- Economics 201, 202, and 203
- Geography 201, 202, 203, 225, 242, and 271

Group B—Humanities
- Nine hours minimum required.
- Art and Art History 206, 207, 208, 209, 211, 212, 213, and 219
- Classics 100, 111, 112, and 113
- Communication 101, 102, 111, and 141
- Comparative Literature 201, 202, 203, and 210
- English 190, 201, 202, 203, 204, 205, 210, 211, and 212
- Modern Languages 111, 112, 113, 114, 115, 211, 212, 213, 214, and 215
- Music 111, 112, 113, 114, and 117
- Philosophy 111, 112, 113, 115, 123, and 124
- Religion 111, 112, 113, 114, 200, 202, 210, and 280
- Theatre 101, 131, 180, 203, 231, 232, 233, 360, and 361
- University Honors 201 (Restricted to University Honors students.)

Summary of General Education Requirements
Area One/English Composition—two courses
Area Two/Laboratory Sciences—a three-course sequence
Area Three/Social Sciences and Humanities—twenty-seven hours
Area Three A/Social Sciences—nine hours minimum
Area Three B/Humanities—nine hours minimum
Profile

Accreditation and Memberships

Wright State is accredited by the North Central Association of Colleges and Schools. Also, programs in the College of Education and Human Services are accredited by the State of Ohio Department of Education and the National Council for Accreditation of Teacher Education; our music programs are accredited by the National Association of Schools of Music; business programs by the American Assembly of Collegiate Schools of Business; social work by the Council on Social Work Education; environmental health by the National Accrediting Council for Environmental Health Curricula of the National Environmental Health Association; medical technology by the American Society of Clinical Pathologists; medicine by the Liaison Committee on Medical Education; the Department of Engineering’s systems engineering, and materials science and engineering programs by the Accreditation Board for Engineering and Technology; and the School of Nursing by the National League for Nursing. In addition, the Bachelor of Science program in chemistry is certified by the American Chemical Society, and the Western Ohio Branch Campus is accredited by the North Central Association of Colleges and Schools at the associate degree-granting level.

We hold membership in numerous organizations, including the American Assembly of Collegiate Schools of Business, the Midwestern Association of Graduate Schools, the Council of Graduate Schools, the Ohio College Association, the Association of Urban Universities, the American Association of State Colleges and Universities, the American Council on Education, the American Association of Colleges, the American Association of Colleges of Nursing, and the Council of Baccalaureate and Higher Degree Programs of the National League for Nursing.

Wright State participates in many kinds of cooperative ventures with local colleges, universities, and institutions. Through the Dayton-Miami Valley Consortium, an association of fifteen colleges and universities, Wright State students may take courses at member institutions and also take advantage of their library facilities. The School of Medicine has cooperative arrangements with Central State and Miami Universities, and the School of Nursing offers its master’s program in cooperation with Miami University. Both of these schools work closely with many area hospitals. The Western Ohio Branch Campus offers programs and courses in conjunction with Lima Technical College and the Lima Branch Campus of Ohio State University. Wright State’s telecommunications department works with the University Regional Broadcasting Corporation, a joint program of Wright State, Central State, and Miami Universities. In addition, the Sanders Judaic Studies Program, providing scholarship and teaching in the field of Judaic studies, is made possible through the cooperative effort of Wright State, Antioch College, United Theological Seminary, and the University of Dayton.
Business and Administration
The College of Business and Administration has as its primary objective the development of qualified business professionals. This objective is met by ensuring a knowledge of basic business functions, by providing the foundation for continuing self-development, by educating students to be aware of the businessperson's responsibilities in the political, social, and economic order of society, and by increasing the student's capacity for adjustment to the rapidly changing conditions of the business world.

The College of Business and Administration offers a broad curriculum leading to a Bachelor of Science in Business degree with majors in accountancy, business economics, finance, management, management science, and marketing.

Graduate study is available to qualified students through a program which leads to the Master of Business Administration. The program has been designed for persons holding baccalaureate degrees either in business administration or in other areas. Persons who are employed full time may complete a program on a part-time basis by taking courses offered in the evening. Both the master's and bachelor's degree programs are fully accredited by the American Assembly of Collegiate Schools of Business.

A second graduate program leading to a Master of Science degree is offered in social and applied economics. This program stresses the practical application of social science theory. The program includes an internship which integrates experience with a multidisciplinary instructional base. For information on the master's programs, see the Gradate Catalog.

A chapter of Beta Gamma Sigma, the national scholastic honor society in the field of business and administration, was established at Wright State in 1976.

Admission

All students who seek a degree in business administration should apply to the director of admissions, Wright State University. When applying, students should indicate their preferred major within the college, if known. Business administration majors are required to complete the program of study which is current at the time of their admission to the College of Business and Administration. Requirements for admission to the college are outlined on the next page.
Admission from University Division and other WSU Colleges
The student seeking admission from the University Division or another college of Wright State must have at least thirty-six quarter hours of academic credit, a 2.25 cumulative grade point average, and a grade of C or better in a math course at or above the level of college algebra (MTH 129). Students may initiate the transfer process by completing an Intrauniversity Transfer Form and submitting it to the office of their current major.

Admission from other Universities and Colleges
Students from other universities and colleges must have at least thirty-six quarter hours of academic credit and a 2.25 cumulative grade point average.

Returning Students
A student who returns to Wright State University after an absence of four or more consecutive quarters may be granted admission to the college according to the requirements which are applied to transfer students from other universities and colleges. These students will be required to satisfy the program requirements which are current at the time of readmission to the college.

Transfer Credit
The college reserves the right to limit the number of transfer hours applied toward the degree. Credits earned in junior or community colleges will normally apply only to the requirements of the freshman and sophomore years. Credit may be accepted for work done at the 100-200 level in required courses offered by the College of Business and Administration. Course work corresponding to 100-400 level courses outside the college may be applied to the nonprofessional and General Education requirements.

The college may accept for credit a principles course at the 300 level if the student completes an advanced course in the same subject area with a grade of C or better. This will be considered a validation of the student's credit. This course work is counted toward the degree requirements and will not normally result in an additional number of hours to complete the program of study.

Transfer credit from nonregionally accredited institutions will not apply toward the degree. Students should consult with the academic adviser in the College of Business and Administration to determine which courses will apply toward the degree.

Degree Requirements
Candidates for the Bachelor of Science in Business degree must fulfill the university General Education requirements during the freshman and sophomore years. All students will take a basic core of business courses, regardless of their major, and in addition are expected to complete the sequence of required professional courses, professional electives, and nonprofessional electives as set forth in the appropriate program. Professional elective courses must be junior or senior level courses selected from offerings of the Departments of Accountancy, Economics, Finance, Insurance, and Real Estate, Management, and Marketing. Nonprofessional electives must be selected from departments of the university other than those in the College of Business and Administration. At least forty percent (but a maximum of sixty percent) of the work applied toward the degree must be outside the business college.

In order to take 300- or 400-level courses in the College of Business and Administration, a student must attain ninety quarter hours of academic credit prior to, or by the completion of, the academic quarter in which the student wishes to take the 300- or 400-level course(s). The last forty-five hours of course work must be taken at Wright State University. All students must complete a total of 187 hours of acceptable academic work with at least a 2.0 cumulative average. In some cases a student may find it necessary to earn more than 187 credit hours to complete the requirements of the program under which he or she seeks to graduate.

Students wishing to pursue a double major within the College of Business and Administration must formally declare their intention to do so. To earn a double major, students must complete all minimum requirements for both programs of study.

Advising
One of the services provided by the College of Business and Administration is advising. Advisers are available by phone or appointment to answer questions, assist in program planning, or help with procedural and academic problems.

The advising office prepares a student handbook annually, which provides information about program requirements, university and college regulations, and various opportunities available to students majoring in business and administration. In addition, students receive a quarterly newsletter which includes information about upcoming events and activities, special course offerings, and program modifications.
Faculty members of the College of Business and Administration are available to discuss career opportunities and career planning, to recommend professional elective courses, and to supervise internships and independent study projects. Students should contact the appropriate department to determine the faculty members who are available for advising.

Business Minor
Nonbusiness students may earn a concentration in business in addition to their major program of study by completing the requirements for the business minor program. Students who register for the minor will complete forty-five hours of business course work and six hours of mathematics to receive the designation of “Minor in Business” on their transcript upon graduation. In many cases, a student can use all fifty-one hours of course work to fulfill the elective requirements of his or her major program. The business minor has been designed to include all course prerequisites for the Master of Business Administration program. Thus, the student could earn the baccalaureate degree with the business minor in four years of successful full-time study and, in an additional year, complete M.B.A. degree requirements.

Courses required for the business minor are listed below:

- AIS 103 Introduction to Data Processing and COBOL
- ACC 201, 202, 203 Accounting Concepts and Principles I, II, III
- EC 201, 202, 203 Principles of Economics
- QBA 201 Introduction to Statistical Analysis
- MTH 224 Calculus for Administrative, Life, and Social Sciences I
- MTH 226 Calculus for Administrative, Life, and Social Sciences II
- MGT 301, 302 Principles of Management and Introduction to Organizational Behavior
- MKT 301, 302 Principles of Marketing and Marketing Management
- FIN 301, 302 Business Finance I, II
- ADM 350 Business Law I

Students in the minor program are restricted from taking business courses other than those required by the program. Students who complete course work in data processing, mathematics, or statistics, other than those listed, may be permitted to count that course work toward the business minor, with permission. For more information, contact the undergraduate adviser in the College of Business and Administration.

Honors Program
The College of Business and Administration sponsors an honors program in order to allow students who have demonstrated outstanding academic ability and superior accomplishments to complete a program in the college which will encourage and recognize their distinguished efforts and abilities. Such students may earn an honors degree by completing the departmental major requirements, by maintaining a high academic record, and by successfully completing the college Honors Program. Students who are interested in applying to the program may contact the college’s advising office for eligibility requirements and further details.

Graduation Requirements
All students will be required to satisfy the following minimum requirements for graduation:

1. Completion of 187 quarter hours of acceptable credit
2. Attainment of a 2.0 or better grade point average
3. Completion of all course requirements, as specified by the student’s program of study
4. Completion of the last forty-five hours of course work at Wright State
5. Completion of a minimum of thirty credit hours of upper division course work at Wright State

Seniors are advised to consult their academic adviser prior to the last quarter of study, to ensure that all requirements for graduation will be completed.

Required Courses for Majors in Business and Administration
Business majors are required to complete the core program in business and related course work, as listed in the following schedule. Additional course requirements and electives are determined by the student’s major program of study, shown in the following pages. The standard freshman- and sophomore-year program for majors in management science differs slightly; see the section on Management Science for specific program requirements.

This listing, combined with the major program listing, represents an ideal schedule for a full-time student pursuing a four-year program. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

Since students are bound by the requirements which are current at the time of admission to the college, the student’s actual program requirements may differ slightly from those represented in this catalog.
Freshman Year

First Quarter 14
ENG 111 4 ADM 101 3
Science I 4 MTH 129 3

Second Quarter 14
ENG 112 4 AIS 103 3
Science II 4 MTH 224 3

Third Quarter 19
MTH 226 3 Humanities 4*
Science III 4 Humanities or Social Science 8*

Sophomore Year

Fourth Quarter 15
ACC 201 3 Humanities 3*
QBA 201 3 CS 200 3
EC 201 3

Fifth Quarter 15
ACC 202 3 EC 202 3
Nonprofessional QBA 202 3
Elective 3 COM 203 3

Sixth Quarter 17
ACC 203 3 EC 203 3
Humanities or LCS 210 1
Social Science 4* ENG 330 3
Nonprofessional Elective 3

*Courses must be selected from those approved for General Education requirements. See the chapter on Academic Standards in this catalog. Credit hours may vary depending on the courses selected. Students are required to complete at least three courses in the humanities and additional course work in the social sciences or humanities for an overall total of at least eighteen credit hours.

Accountancy

Professors Castellano, Eiteman, Hassan, Pabst, Paperman (chair), Roehm, Taibott
Assistant Professors Brecha, Campbell, Hereth, Kremer (WOBC)
Instructors Lee, Palmer

Students who elect to major in accountancy may prepare themselves for a variety of careers in this area of concentration as well as fulfilling the education requirements for taking the Certified Public Accountant (C.P.A.) examination in the state of Ohio. This major also provides an excellent undergraduate background for a degree in law. While only one general program is offered, the careful selection of electives under the guidance of the student's faculty adviser leads to a variety of career preparations. An optional accounting internship program (ACC 481) is available for qualified students.

Transfer students who major in accountancy should note that at least eighteen credit hours of their accountancy courses must be taken at Wright State.

Degree Requirements—Accountancy

Bachelor of Science in Business Degree

The program in accountancy requires a minimum of 187 credit hours.

The following program represents the optimum schedule for a full-time student pursuing a four-year program. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

Junior Year

Seventh Quarter 15
FIN 301 3 ACC 304 3
MGT 301 3 ACC 331 3
AIS 300 3

Eighth Quarter 15
FIN 302 3 ACC 305 3
MKT 301 3 ACC 321 3
QBA 303 3

Ninth Quarter 18
MGT 302 3 ACC 306 3
MGT 303 3 ACC 322 3
MKT 302 3 QBA 304 3

Senior Year*

Tenth Quarter 15
FIN 303 3 ADM 350 3
ACC 411 3 ACC Elective 3
ACC 421 3

Eleventh Quarter 15
ACC Elective 3 Nonprofessional Professional
Elective 3 EC 301 3

Twelfth Quarter 19
ADM 482 3 Professional or
MGT 481 4 Nonprofessional
ACC 498 or 499 3 Elective 3
Professional 3 ADM 351 or 352 3
Elective 3

*The accountancy courses listed for the senior year represent only one schedule of offerings. Other schedules are available which may better fill the student's needs. Contact an academic adviser for additional information on alternative schedules for the senior year.
Administration
See Management

Business Education
See College of Education and Human Services

Economics

Professors
Anon, Blair (chair), Fabrycy, Kumar, Premus, Renas, Treacy

Adjunct Professor
Verdon

Associate Professor
Blake

Assistant Professors
Fichtenbaum, Swaney

Assistant Visiting Professors
Dung, Shahidi

Adjunct Assistant Professor
Wechsler

The dimensions of economics range from the practical concerns of how a business firm strives for efficiency to the visionary questions concerning limits imposed by the laws of nature on the earth’s population and natural resources. Economics focuses on man’s efforts to improve his welfare, by understanding individual decision-making in the face of relative scarcity and by studying the complex relationships between the production, consumption, and distribution of material goods within systems of markets, governments, and supranational institutions.

Students of economics develop the ability to reason logically, integrate broad perspectives, measure empirically, manipulate in the abstract, and imagine grandly. These skills and talents serve well in preparing students for careers in business, law, and government and for graduate programs in economics, business, and law. Graduates of our program are employed as professional economists in such diverse areas as urban economics, manpower and training analysis, business forecasting, school finance consulting, health and delivery systems evaluation, budget analysis, marketing consulting, government planning, and statistical analysis. Some of our graduates continue their education in our master’s program in social and applied economics.

The program outlined here is designed to give our students both the background that will broaden and maintain their future options and the specific skills necessary to use and apply economic ideas. Departmental undergraduate advisers are available to any student who may wish advice about formulating and attaining career goals, as well as making decisions concerning elective courses.

Students with a major in business economics must take a minimum of thirty-three credit hours in economics in addition to the basic business core (which includes EC 201, 202, 203) required of all candidates for the Bachelor of Science in Business degree.

Degree Requirements—Economics

Bachelor of Science in Business Degree

The program in economics requires a minimum of 187 credit hours.

The following program represents the optimum schedule for a full-time student pursuing a four-year program. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

Junior Year

Seventh Quarter
EC 315 4 AIS 300 3
FIN 301 3 QBA 303 3
MGT 301 3

Eighth Quarter
EC 317 4 MKT 301 3
FIN 302 3 QBA 304 3
MGT 302 3

Ninth Quarter
EC 316 4 MKT 302 3
EC Elective 3 ADM 350 3
MGT 303 3

Senior Year

Tenth Quarter
EC Elective 6 Nonprofessional Elective 6
Professional Elective 3

Eleventh Quarter
EC Elective 6 ADM 482 3
Professional Elective 3 Nonprofessional Elective 3

Twelfth Quarter
EC Elective 6 Nonprofessional Elective 6
MGT 481 4

Finance, Insurance, and Real Estate

Professors
Bacon (chair), Gitman, Goulet, Gressis

Associate Professors
Ahmad, Maxwell, Williams

Two concentrations are available to the finance major. The concentration in general finance provides a core of courses which will introduce students to all aspects of the theory and practice of finance, especially in the areas of financial management, investments, and financial institutions. The financial services concentration is
designed to meet the growing need for people who are knowledgeable in all areas of personal financial management, including investments, real estate, insurance, taxes, and estate planning. Students may also elect a dual major with finance and accountancy.

Degree Requirements—Finance

Bachelor of Science in Business Degree

The program in finance requires a minimum of 187 credit hours.

The following program represents an optimum schedule for a full-time student pursuing a four-year program with a general finance concentration. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

Students may obtain curricular requirements and further information about the financial services concentration by contacting the department.

### Junior Year

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<td>Professional Elective</td>
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<td>MGT 481</td>
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*Students may elect to take the sequence of ACC 321 and 322 in place of two finance electives.

Insurance

See Finance, Insurance, and Real Estate

### Management

**Professors** Kirk, Lanford, Murray, Stickney, Wilson (Piqua), Von der Embse

**Associate Professors** Daily (chair), Hartmann, McGrath, Waggener

**Assistant Professors** Evans, Knapke (WOBC), Wagley

The management major is designed to provide a background in all facets of organization and management. All management majors are encouraged to take PSY 111 and 112 during the freshman or sophomore year. The student’s combination of elective courses can be determined in consultation with his or her faculty adviser.

Degree Requirements—Management

Bachelor of Science in Business Degree

The program in management requires a minimum of 187 credit hours.

The following program represents the optimum schedule for a full-time student pursuing a four-year program. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

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<td>Professional Elective</td>
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<td>ADM 482</td>
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Concentrations

Students will select an area of concentration in general management, personnel and industrial relations, production management, or materials management. Course requirements for each concentration are listed below.

General Management

Select four courses from MGT 422, 423, 431, 432, 433, 434.

Personnel and Industrial Relations

MGT 422 and 423 are required. Students may select three courses from COM 441, 443, 445; MGT 415, 434C, D, F; EC 351, 352, 354; PSY 306, 307, 309, 311, 315; SOC 350, 440, 441; ADM 480.

Production Management

Six courses are required, including at least three of the following: MGT 431, 432, 433, and 434B. To complete the total of six courses, select two or three from EC 401, 454; COM 445, 447; MKT 471; PSY 306; QBA 320.

Materials Management

Required courses are MGT 432, 433, 434G, and MKT 431. In addition, students select two courses from ADM 351, 352; EC 401; MGT 431, 434B; MKT 471; QBA 320.

Management Science

Professors: Cleary, Cox
Associate Professors: Constable, Daily (chair), Demmy, Lai
Assistant Professors: Boggs, Denison, Hobbs, Yen
Visiting Instructor: Hanselman

The management science major provides training in quantitative methods that have proven useful in solving business problems. The focus of the course work is the development and application of quantitative techniques to assist the modern manager in the decision-making process. Concentration electives provide courses in operations management, business statistics, operations research, and computer applications. Operations management is primarily concerned with the day-to-day operations of the firm, including inventory control, quality control, and scheduling. Business statistics is concerned with the application of statistical concepts and techniques in analyzing data to draw inferences for control and planning purposes. Operations research uses mathematical methods to solve a variety of problems such as resource allocation, product mix, and length of waiting lines. Computer applications include courses in information systems design and simulation.
Senior Year

Tenth Quarter 15
MGT 411 3 MGT 412 or 421 3
Nonprofessional Concentration
Elective 3 Elective 6

Eleventh Quarter 12
QBA 491 3 MGT 482 3
Concentration Nonprofessional
Elective 3

Twelfth Quarter 16
MGT 481 4 Professional Concentration
Concentration Elective 9

Elective 3

*Courses must be selected from those approved for General Education requirements. See the chapter on Academic Standards in this catalog. Credit hours may vary depending on the courses selected. Students are required to complete at least three courses in the humanities and additional course work in the social sciences or humanities for an overall total of at least eighteen credit hours.

Major Requirements

All management science majors must:

1. Take the following courses:
   - CS 141, 142, ACC 300, QBA 491, MGT 411, and MGT 412 or 421

2. Select one from each of the following concentrations plus at least one additional course from any of these concentrations.
   - Operations Management: MGT 431, MGT 432
   - Business Statistics: QBA 430, QBA 431
   - Operations Research: QBA 440, QBA 441
   - Computer Applications: QBA 320, QBA 321, QBA 452

3. Take at least one of the following courses:
   - MGT 434B, MKT 431, EC 409, EC 412

Marketing

Professors Brown, Carusone, Kergeeis, Venkatesan

Associate Professors Anderson (chair), Dovel, Khera, Wise

Assistant Professor Kim

The student who majors in marketing receives a thorough foundation in the concepts and techniques necessary to effectively manage a customer-oriented business. In addition to survey courses in Principles of Marketing (MKT 301) and Marketing Management (MKT 302), which are part of the professional business core, a marketing major completes required study in Consumer Behavior (MKT 303), Personal Selling (MKT 336), Product Management (MKT 336), Price Management (MKT 418), Advertising (MKT 441), a course in distribution—either Logistics (MKT 431), Retailing (MKT 461), or Channels (MKT 480D), and the capstone marketing policy course (MKT 492).

Marketing careers are far reaching and diverse as they touch on all components of the marketing mix—product, promotion, pricing, and channels of distribution. In turn, each of these functional areas also offers dozens of specific job opportunities. For example, the promotional area includes potential employment in advertising, public relations, personal selling, and merchandising. Moreover, a single area, such as advertising, can offer more than two dozen special career orientations.

Other major employment tracks include retailing, marketing research, product management, personal selling, and strategic planning. Your faculty adviser can discuss your marketing career plans with you. Further, a special Student Marketing Internship Program* is available to a limited number of qualified students.

*For six hours of internship credit, three hours apply toward the student’s marketing electives and three hours apply toward professional electives.

Degree Requirements—Marketing

Bachelor of Science in Business Degree

The program in marketing requires a minimum of 187 credit hours.

The following program represents the optimum junior- and senior-year schedule for a full-time student pursuing a four-year program. See the section on Required Courses for business and administration majors for the freshman- and sophomore-year schedule. Many individuals, especially part-time students, will be unable to follow the program as shown. These students should contact their academic advisers to plan their schedules.

Junior Year

Seventh Quarter 15
FIN 301 3 QBA 303 3
MGT 301 3 AIS 300 3
MKT 301 3

Eighth Quarter 15
FIN 302 3 QBA 304 3
MGT 302 3 MKT 336 3
MKT 302 3

Ninth Quarter 18
MKT Elective 3 EC 301 3
MGT 303 3 Nonprofessional
MKT 303 3 Elective 3
ADM 350 3
### Senior Year

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<td>MKT 441</td>
<td>3</td>
<td>Elective</td>
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<tr>
<td></td>
<td>Professional Elective</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eleventh Quarter</td>
<td>MKT 418</td>
<td>3</td>
<td>Professional</td>
<td>15</td>
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<tr>
<td></td>
<td>MKT 431, 461, or 480D</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ADM 482</td>
<td>3</td>
<td>Nonprofessional Elective</td>
<td>3</td>
</tr>
<tr>
<td>Twelfth Quarter</td>
<td>MKT 492</td>
<td>3</td>
<td>Professional</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>MGT 481</td>
<td>4</td>
<td>Elective or Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MKT Elective</td>
<td>3</td>
<td>Nonprofessional Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

### Real Estate

See Finance, Insurance, and Real Estate
Education and Human Services
Wright State University recognizes the preparation of teachers, educational leaders, and professionals in human services as a primary function. The College of Education and Human Services assumes responsibility for furthering the objectives of the university in these areas of concern. A variety of programs is offered by the college through its Allied Health Professions Program and the Divisions of Educational Leadership, Human Services, Health, Physical Education, and Recreation, and Library and Communication Science. Both undergraduate and graduate programs leading to certification by the Ohio Department of Education in primary, elementary, special education, and secondary school teaching fields are offered within the Division of Teacher Education. The Divisions of Educational Leadership and Human Services are concerned with programs preparing both certified and noncertified leaders for public and private schools and for community agencies. These leaders include public school principals, curriculum supervisors, central office administrative specialists, school psychologists, school guidance counselors, personnel counselors, and rehabilitation specialists.

The Bachelor of Science in Education degree and the Bachelor of Science degree with a major in rehabilitation education are offered. Graduate degrees include the Master of Arts, Master of Art Therapy, Master of Education, Master of Rehabilitation Counseling, and Master of Science.

Degree programs include General Education requirements, an intensive study of an academic or a specialized professional area, and a professional component that integrates theoretical considerations with clinically based practicum experiences.

In addition to regular degree programs, the College of Education and Human Services offers both credit and noncredit special courses and workshops for community educational personnel.

Throughout its history, the college has maintained a close working relationship with the public schools of the area. Cooperative efforts through the teacher education laboratory centers facilitate inservice and preservice teacher education by providing a variety of theoretical and clinical experiences for students. Frequent involvement of the College of Education and Human Services faculty in the schools of the area and the advice and planning assistance of public school personnel serve to improve both the teacher education programs and the programs of the schools of the community.

The College of Education and Human Services meets the certification standards of and has been approved by the Ohio State Board of Education and is a member of the American Association of Colleges for Teacher Education. The college is accredited by the National Council for Accreditation of Teacher Education.
Undergraduate Programs

The College of Education and Human Services offers four-year curricula leading to the Bachelor of Science in Education degree and Ohio teacher certification in the following fields. Second teaching fields must be coupled with a major teaching field.

The elementary and secondary programs have been revised to meet the State of Ohio Standards for Colleges or Universities preparing teachers. One of the requirements mandated by these standards is the completion of 300 clinical/field experience hours prior to student teaching. Students can anticipate spending five full days of prequarter participation during Phase I (typically the sophomore year) and an additional half day per week per quarter for a three-quarter sequence. In Phase II (typically the junior year), one day per week participation for three quarters is required. These requirements should be taken into account when scheduling other courses. Upon acceptance into the College of Education and Human Services, each student should meet with his/her adviser to determine specific program changes which may not be reflected in this catalog.

Elementary—Grades 1-8
Kindergarten (see Kindergarten validation)
Elementary Education (1-8)

Special Fields—Grades K-12
Art Education
Educational Media
Music Education (see Music, College of Liberal Arts)
Physical Education
Special Education—Mentally Retarded (EMR and MSPR)

Secondary—Grades 7-12

Major Teaching Fields
Biological Sciences
Business
Chemistry
Earth Science
English
History

Second Teaching Fields
Art Education
Biological Sciences
Chemistry
Earth Science

Geography
Health Education
History
Latin
Mathematics
Modern Languages
Physics
Political Science
Sociology
Special Education
Mentally Retarded
(EMR and MSPR)
Learning Disabilities

Rehabilitation Education
The College of Education and Human Services also offers a four-year curriculum leading to a Bachelor of Science degree with a major in rehabilitation education. This program prepares students to work with the physically/mentally disabled and disadvantaged, but does not include teacher certification. Students may choose one of two major concentrations: Generalist or Mental Health.

Validation of Standard Teaching Certificates
Curricula are available to validate standard teaching certificates in the following areas.

Educational Media (Elementary School)
The holder of a standard elementary teacher’s certificate may have that certificate validated for teaching educational media in the elementary school upon the completion of the educational media concentration.

Kindergarten
The holder of a standard elementary teacher’s certificate may have that certificate validated for teaching kindergarten by completing the early childhood education concentration.

MSPR
A provisional teacher’s certificate to teach moderately, severely, and profoundly retarded (MSPR) individuals will be issued to a holder of a bachelor’s degree who satisfactorily completes the following courses:

ED 441, 451, 452, 302, 453, and 459 (ED 403 or 404 is a strongly encouraged elective); ED 419 or 458, Supervised Teaching in a Setting for Multiply Impaired Clients.

MSPR Validation for Special Teaching Fields
Persons holding teaching certificates in special fields such as home economics, physical education, art education, and music education can validate these certificates for teaching moderately, severely, and profoundly retarded individuals in these fields by taking ED 302, 451, and 453.
Orthopedically Handicapped
A person who holds a standard special education certificate may have that certificate validated for teaching the orthopedically handicapped by completing the special education concentration, ED 452 and ED 458, in an appropriate setting. (See a special education adviser for assistance.)

Physical Education (Elementary School)
The holder of a standard elementary teacher's certificate may have that certificate validated for teaching physical education in the elementary school upon the completion of the elementary physical education concentration.

Qualified Mental Retardation Professional (QMRP)
Professionals who hold licenses or certificates in fields other than teaching, such as rehabilitation, psychology, speech pathology, physical therapy, occupational therapy, and nursing, may receive a QMRP certificate from the Ohio Department of Mental Retardation by taking ED 451, 453, and one of the following: ED 302, 445, and 459.

Reading
The holder of a standard elementary or secondary teacher’s certificate may have that certificate validated for teaching reading upon the completion of the reading concentration.

Visual Arts
The holder of a standard elementary teacher's certificate may have that certificate validated for teaching visual arts upon the completion of the visual arts concentration.

Education Honors Program
Outstanding students enrolled in programs in the Division of Educational Leadership have an opportunity to complete the University Honors Program or an honors program in education. This program provides students expanded opportunities for creativity, self-direction, and excellence through an extended period of independent study.

Junior- or senior-level students enrolled in the College of Education and Human Services are eligible for the honors program if they have maintained a 3.0 overall cumulative average, a 3.0 cumulative average in professional education, and have been recommended by a faculty member from the program area in which they plan to work.

Students interested in pursuing an honors program should consult an education adviser.

Admission and Retention Standards/Advising
The admission and retention policy and practices of the College of Education and Human Services are based upon the following principle, which is supported by the Ohio Laws and Regulations of the State Board of Education and the National Council for Accreditation of Teacher Education.

"Because there are skills, understandings, and personal characteristics unique to teaching, students seeking admission to programs in teacher education must meet requirements in addition to those generally prescribed for enrollment in the university. While academic performance is a major determinant of effective teaching, it is not the only one. Colleges of education have the right and obligation to consider personal factors as well as academic achievement as a basis for admission and retention of a student in its professional education programs."

Admission
Students are admitted to the College of Education and Human Services after they have completed twenty-four credit hours and have attained a 2.25 gpa. For students in Teacher Education, subsequent admission to the professional education course sequence (Phase I) requires also the completion of PSY 111 and ENG 111 and 112. Students in Teacher Education are required to attend an orientation meeting and complete a test for basic skills competency.

Transfer Students
Students transferring from other institutions or from other colleges of Wright State University must meet the same standards for admission to the College of Education and Human Services detailed above, including the 2.25 grade point average and the completion of twenty-four credit hours (or equivalent) of college credit.

Retention
In order to increase the likelihood of the student’s success, the professional degree program requires that certain criteria be met at various stages which lead to recommendation for certification and graduation. These criteria reflect requisite academic standards and effective performance of professional responsibilities which include the ability to provide for students’ safety; effectively communicate with students orally and in writing; provide a stable, supportive environment which will facilitate student growth; and manage the instructional program for individuals and for small and large groups.
Faculty members, on the basis of their knowledge of a student and their professional observations, evaluate each student's progress in meeting these criteria and decide on retention and the recommendation for certification.

Advising

Upon admission to the College of Education and Human Services, each student is assigned an adviser. Students are expected to have an initial conference with their advisers to review the academic program. Students are strongly encouraged to see their advisers whenever they have questions concerning their programs, specific courses or course sequences, or their professional goals. Because of the sequential character of many courses and the prerequisites needed in both the professional and academic components of education degree programs, students are strongly urged to consult an adviser before registering. Any deviation from the specified curriculum should be discussed in detail with the adviser before it is undertaken. An undergraduate education guidebook is provided for each student. This book should be studied carefully and kept with all academic records.

Degree Requirements

The Bachelor of Science in Education degree is earned by College of Education and Human Services students completing teacher preparatory programs. It is granted only to students qualifying for a teaching certificate in Ohio. The program leading to the Bachelor of Science degree with a major in rehabilitation education prepares students to work with the disabled and disadvantaged, but does not lead to a teaching certificate.

General Degree Requirements

1 Completion of a minimum of 192 credit hours (which may include six hours of college service physical education).
2 Fulfillment of university General Education requirements.
3 An overall cumulative grade point average of 2.25 or higher.
4 Successful completion of a basic skills competency test battery.
5 Satisfactory completion of all required professional laboratory experiences.

Specific Requirements

Elementary Education
(preparation for teaching in elementary grades)

1 General requirements listed above.
2 Of the 192 credit hours required for graduation, a minimum of forty-five quarter hours in professional education.
3 Completion of prescribed pattern of courses including a minimum of one approved area of concentration (see program descriptions on subsequent pages).

Special Fields
(preparation to teach special subjects in grades K-12)

1 General requirements listed above.
2 Of the 192 hours required for graduation, a minimum of thirty-two hours in professional education.
3 For specific degree requirements in art education, educational media, physical education, and a description of certification requirements in special education, see the program descriptions on subsequent pages. For specific degree requirements in music education, see Music, College of Liberal Arts.

Secondary Education
(preparation to teach academic subjects in grades 7-12)

1 General requirements listed above.
2 Of the 192 credit hours required for graduation, a minimum of thirty-two hours in professional education.
3 Completion of appropriate speech and mathematics requirements.
4 Fulfillment of requirements established in one or more major teaching fields.

A student may have a major and one or more second teaching fields, two majors, or a comprehensive field. The student is strongly advised to prepare in at least two teaching fields or a comprehensive field. A student who has taken the curriculum and materials course in the major field is not required to take a comparable course in other fields but may do so. If the two fields are unrelated, a second curriculum and materials course may be required. The College of Education and Human Services considers the minimum requirements for a second field inadequate for effective teaching except on an emergency basis unless supported by a closely related field. Therefore, a student should choose closely related supporting fields or plan to take more than the minimum work in the second field.
Rehabilitation Education
(preparation for work with disabled and disadvantaged individuals)
1. General requirements listed above.
2. Completion of prescribed pattern of courses.
   This program does not include teacher certification.

Recommendation for Certification
Every teacher in Ohio public schools is required to have a certificate covering the field(s) in which he or she is teaching. This certificate is issued by the Ohio Department of Education upon the recommendation of the College of Education and Human Services. Students may apply for certification in the College of Education Office of Student Services during the last quarter of their professional undergraduate programs.

Certification of Students from Other Colleges within the University
Students who receive degrees from other colleges within the university may also wish to obtain teaching certificates. They will be recommended for certification only upon satisfactory completion of all the requirements of the College of Education and Human Services. These include admission, selective retention, the major teaching field and related requirements, the preprofessional and professional courses included in the secondary education programs listed on subsequent pages, and the minimum of 192 credit hours. At the beginning of the sophomore year, students from other colleges who are seeking certification should review their programs with a teacher certification adviser and make application to the certification program.

Certification for Holders of Nonprofessional Degrees
Students who are graduates of other accredited colleges or universities may be recommended for certification upon satisfactory completion of the general, major, and professional courses required for the teaching field(s) in which they seek certification. Certification candidates are urged to have their records evaluated and their programs planned by a teacher certification adviser upon application to the college.

Certification for School Nurses
The requirements for a provisional school nurse’s certificate are a bachelor’s degree from an approved institution, a current license as a registered nurse in the state of Ohio, and successful completion of the prescribed program of thirty-five to thirty-eight hours of professional education. Registered nurses who do not hold a bachelor’s degree may complete degree and certification requirements concurrently.

School Nursing Certification
Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPR 330</td>
<td>4</td>
</tr>
<tr>
<td>ED 463</td>
<td>3</td>
</tr>
<tr>
<td>ED 440</td>
<td>3</td>
</tr>
<tr>
<td>ED 211, 214, 217</td>
<td>6</td>
</tr>
<tr>
<td>HPR 440</td>
<td>4</td>
</tr>
<tr>
<td>HPR 419</td>
<td>12-15</td>
</tr>
</tbody>
</table>

Retraining Programs
Holders of standard Ohio secondary or special teaching certificates may qualify for the retraining elementary provisional certificate. The retraining certificate is valid for four years and may be converted upon its termination to a standard provisional elementary certificate with the completion of specified additional course work in areas required for elementary certification.

Conversion from Secondary to Elementary Certification
Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 440 or 735*</td>
<td>3-4</td>
</tr>
<tr>
<td>ED 315, 316, 317</td>
<td>9</td>
</tr>
<tr>
<td>ED 318 (Prerequisite: MTH 343)</td>
<td>3</td>
</tr>
<tr>
<td>ED 403 or 603*</td>
<td>3</td>
</tr>
</tbody>
</table>
*If admitted to graduate school.

Conversion of a Retraining Certificate to a Standard Certificate
Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AED 231</td>
<td>3</td>
</tr>
<tr>
<td>ENG 342, 497; COM 205</td>
<td>12</td>
</tr>
<tr>
<td>HPR 281</td>
<td>3</td>
</tr>
<tr>
<td>MTH 343</td>
<td>4</td>
</tr>
<tr>
<td>MUS 165</td>
<td>3</td>
</tr>
<tr>
<td>BIO 101, 102, 103; ED 241, 242, 243*</td>
<td>10-12</td>
</tr>
<tr>
<td>HST 111, 112, 113; PLS 112, 113 (any two)</td>
<td>8</td>
</tr>
</tbody>
</table>
*Three courses, with at least one from each area.
Art Education

Upon graduation, the art education major is certified to teach art from the kindergarten level through grade twelve. Philosophy and methodology courses and numerous studio/craft courses help prepare the student for teaching at all levels. Student teaching in art and additional clinical situations are included in the program. Graduate courses are also offered in art education.

Degree Requirements—Art Education

Bachelor of Science in Education Degree

Professional Education Requirements 47-49

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 326, 327, 328, 329, 403 or 404, 464; AED 438, 439; ED 321, 322, 323 18

Phase III*
ED 422, 440, 429 16-18

Related Requirements 10

PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
COM 101 3

Art Education Major Requirements 85

AED 214, 224, 332, 421, 423, 431, 432, 441 30
AT 444 3
ART 206, 207, 208, 209, 228, 237, 247, 248, 269 36

Art History 8

Electives chosen from AED 225, 422, 424, 425, 426
ART 229, 238, 249, 258, 268, 267, 278, 279 8

Additional General Education Requirements 28

Area One 8
Area Two 12
Area Three A 8

Electives 20-22

Total (minimum requirement) 192

*Field and clinical experiences required.
**May be waived with a score of nineteen or better on the math section of the ACT.

Art Education as a Second Teaching Field

Forty-seven credit hours are required for art education as a second teaching field. Required courses are ART 208, 209; four hours of art history; AED 214, 332, 432, 441, 438; and AED 224, 421, 423, 439.

Biological Sciences Education

The biological sciences education program prepares students to teach biology, chemistry, and general science. The concentration in biology provides greater depth in that area by encompassing all the departmental core courses, including cell biology, genetics, microbiology, developmental biology, animal biology, and plant biology. The program also includes basic and supporting courses in chemistry and physics, related course work in mathematics and/or other areas of science, and the professional education courses required of all candidates for secondary school certification.

Degree Requirements—Biological Sciences Education

Bachelor of Science in Education Degree

Professional Education Requirements 45-47

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 326, 327, 328, 329, 404, 432, 464, 431, 321, 322, 323 16

Phase III*
ED 422, 440, 429 16-18

Related Requirements 13

PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
COM 101, 102 6

Biology Concentration Requirements 101.5

BIO 111, 112, 114 12
BIO 202, 203, or 204 10
BIO 205 or 206, 302 10
BIO 303 or 305 or 306 5
BIO 307 or 402 6
CHM 121, 122, 141 15
CHM 211, 212, 213, 215, 216, 217 18
PHY 111, 112, 113, 101, 102, 102 13.5
GL 101, 102, 103, 104, 105 12
Biological Sciences Education as a Second Teaching Field

Thirty-two credit hours in biology are required for biological sciences as a second teaching field. Required courses are BIO 111, 112, 114, 202, 302 and two of the following: BIO 204, 205, 206, 303 and CHM 121, 122, 141.

Business Education

Business education offers two majors that lead to the Bachelor of Science in Education degree and state certification. The comprehensive with shorthand major leads to certification in all areas of secondary business education. These areas include shorthand, typing, bookkeeping, general business, business law, economics, salesmanship, and other commonly taught business education subjects. The comprehensive without shorthand major includes all the content areas in the comprehensive program except shorthand.

Degree Requirements—Business Education Comprehensive with Shorthand

Bachelor of Science in Education Degree

Professional Education Requirements 50-52

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 326, 327, 328, 329, 404, 432, 464, 433, 435, 321, 322, 323 21

Phase III*
ED 422, 440, 429 16-18

Related Requirements
PSY 111 (General Education, Area Three A—one course) 4
COM 101, 102 6

Comprehensive Business Major Requirements 73
ACC 201, 202, 203 9
ADM 101, 350; AIS 103 9
EC 201, 202, 203 (General Education, Area Three A) 9
ENG 330 3
MTH 127 3
MGT 301 3
MKT 301, 302 6
MKT 336, 441, 461 (choose one) 3
OA 202, 203, 211, 212, 213, 301, 305, 411 25
Business or business education elective 3

Additional General Education Requirements 24
Area One 8
Area Two 12
Area Three B 4
Electives 33-35

Second field suggested. Total (minimum requirement) 192

*Field and clinical experiences required.
Chemistry Education

The chemistry education program prepares students to teach chemistry and general science in the secondary school. The concentration provides a strong preparation in chemistry with courses in general, organic, analytical, and physical chemistry. The program includes basic and supporting courses in biology, physics, and earth science and the professional education courses required of all candidates for secondary school certification. Students are strongly advised to complete at least one second teaching field in biological sciences or earth science or physics in addition to the basic program in chemistry.

Degree Requirements—Chemistry Education

Bachelor of Science in Education Degree

Professional Education Requirements 45-47

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 321, 322, 323, 326, 327, 328, 329, 404, 432, 464, 431 16

Phase III*
ED 422, 440, 429 16-18

Related Requirements 10
PSY 111 (General Education, Area Three A—one course) 4
COM 101, 102 6

Chemistry Concentration Requirements 92-96.5
CHM 121, 122, 141 15
CHM 211, 212, 213, 215, 216, 217 18
CHM 451, 452 6
CHM 453 or CHM 312, 314 3-7.5
BIO 111, 112, 114 12
GL 101, 102, 104, 105 8
PHY 240, 241, 242, 200, 201, 202 15
MTH 132, 133, 231 15

Earth Science Education

The earth science program prepares students to teach earth science and general science in the secondary school. The concentration in earth science provides intensive preparation in that area with courses in mineralogy, structural geology, and invertebrate paleontology. The program also includes basic and supporting courses in biology, chemistry, and physics, related course work in geography, and the professional education courses required of all candidates for secondary school certification. Students are strongly advised to complete at least one second teaching field in biology or chemistry or physics in addition to the basic program in earth science.

Degree Requirements—Earth Science Education

Bachelor of Science in Education Degree

Professional Education Requirements 45-47

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 326, 327, 328, 329, 404, 432, 464, 431, 321, 322, 323 16

Phase III*
ED 422, 440, 429 16-18

Related Requirements 13
PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
COM 101, 102 6
Degree Requirements—
Educational Media K-12

Bachelor of Science in Education Degree

Professional Education Requirements 51-54

Phase I*

ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*

ED 321, 322, 323, 326, 327, 328, 329, 403 or 404, 432, 464
LCS 449 16

Phase III*

ED 422, 440 4
LCS 481, 482 12
ED 458 or 429*** 6-9

Related Requirements 13-14

PSY 111 4
MTH 127 or 304** 3 or 4
COM 101, 102 6

Educational Media Requirements 30

LCS 411, 491, 421 9
LCS 461, 463, 435 10
ED 315, 421 5
LCS elective 5

Additional General Education Requirements 36

Area One 8
Area Two 12
Area Three A 8
Area Three B 4
Area Three A or B 4

Electives or Second Teaching Field 62

Total (minimum requirement) 192

*Field and clinical experiences required.
**May be waived with a score of nineteen or better on the math section of ACT.

***If a second teaching field is chosen, the student will complete student teaching in that teaching field. If the student does not select a second teaching field, a six credit-hour practicum (ED 458) in an elementary or secondary school classroom is required.

Earth Science Education as a Second Teaching Field

Thirty-three and one-half credit hours minimum are required for earth science as a second teaching field. Required courses are GL 101, 102, 103, 104, 203, 303, 331, GEO 101, 334.

Economics Education

Economics education may be chosen as a second teaching field only. (See Social Studies Comprehensive Education for the major teaching field requirements in this area.) To be recommended for Ohio Provisional Certification in this teaching field, a student must also have completed the program of a major teaching field. Thirty credit hours are required, including EC 201, 202, 203, 301, 340, 441, 321; and five hours of economics electives.

Educational Media K-12 (Library Science Education)

The program in educational media prepares students to serve as educational media specialists in elementary or secondary school library media centers. A student may choose from several options. Students may choose a program designed to prepare them to work in either an elementary or a secondary school (K-12); or they may couple preparation in educational media with a program in elementary education; or they may choose educational media as a second field coupled with one or more secondary teaching fields. Students are strongly advised to complete at least one teaching field concurrently with the preparation to serve as an educational media specialist.

Educational Media (1-8) as a Second Teaching Field for Elementary Education Majors

Educational media (1-8) may be elected as a second teaching field. Thirty credit hours are required, including LCS 411, 421, 435, 461, 449, 481, 491; ED 315, 415, and 421.

Educational Media (7-12) for Secondary Education Majors

Library science education may be elected as a second teaching field only. Thirty credit hours are required, including LCS 411, 421, 461, 463, 491, 435, 449, 482, and one elective.
Elementary Education

The minimum requirement for graduation with the Bachelor of Science in Education degree and Ohio certification in elementary education is 192 credit hours (which may include six hours of college service physical education) and a cumulative grade point average of 2.25 or better. A minimum of forty-five credit hours of professional education and at least one area of concentration are required within the 192 hours.

Concentrations, which provide an opportunity for a student to develop competence in a specific area of the elementary curriculum, are available in the following subjects:

- Early Childhood-Kindergarten*
- Educational Media*
- History
- Humanities
- Mathematics
- Physical Education*
- Reading*
- Science-General
- Science-Environmental
- Social Studies

* A standard elementary certificate may be validated for teaching these areas in the elementary school.

Degree Requirements—Elementary Education

Bachelor of Science in Education Degree

Professional Education Requirements 57-59

| Phase I* | ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 | 13 |


| Phase III* | ED 419, 422, 440 | 16-18 |

Related Requirements 77

(includes General Education requirement)

| AED 231, 431 | 6 |
| BIO 101, 102, 103 | 12 |
| COM 103, 205 | 8 |
| ED 241, 242, 243 | 9 |
| ENG 111, 112, 342, 497 | 16 |
| HPR 281, 331 | 7 |
| MTH 343, 344 | 8 |
| MUS 165, 365 | 7 |
| PSY 111 | 4 |

Social Studies Requirements 27

| GEO 101, 102, 103 (choose one) | 4 |
| EC 300 | 3 |
| SOC 111 | 4 |
| HST 111, 112, or PLS 112, 113 (choose two courses from one sequence) | 8 |
| HST 121, 122 (choose one) | 4 |
| Non-Western History: choose one course from Asian survey, Latin American survey, Afro-American survey, or Africa south of the Sahara | 4 |

Additional General Education Requirements 8

| Area Three B—two courses | 8 |

Electives and Concentration 18-20

See following list of Concentration requirements

Total (minimum requirement) 192

* Field and clinical experiences required.

Early Childhood Education Concentration 19-20

| ED 409, 411, 412, 414 | 16 |
| COM 421 or TH 370 | 3-4 |

Educational Media Concentration 31

| LCS 411, 421, 461, 491, 435, 449 | 19 |
| LCS 481 (usually included as part of student teaching) | 6 |
| ED 421, 415 | 6 |

History Concentration 23

In addition to the social sciences courses taken to fulfill elementary education requirements, students should select courses as follows:

Recommended Courses

| HST 218 or 219 | 4 |
| HST 300 | 4 |
| One course from any American history sequence at 200 level or above | 4 |
| One course from any European history sequence at 200 level or above | 4 |
| One non-Western history course (Far Eastern, African, Byzantine, Latin American) | 4 |
| ED 448 | 3 |
Choose a total of twenty credit hours with at least one course each from four of the following areas:

**Area One**
- Art History
- AED 214
- AED 441
- One art education studio/crafts course

**Area Two**
- ENG 190, 201
- ENG 202, 203, 204, 205

**Area Three**
- LCS 445

**Area Four**
- CPL 201, 202, 203
- CLS 320

**Area Five**
- Any music listening course

**Area Six**
- Any religion or philosophy course

**Area Seven**
- TH 101, 102, 220, 370, 131, 180

**Mathematics Concentration**
- ED 413
- ED 418
- ED 370/470 (mathematics workshops recommended)

**Two of the following:**
- MTH 127, 129, 130, 131, 345; STT 164

**Physical Education Concentration**
- HPR 100, 200, 233, 241, 242, 250, 260, 350, 351, 382, 450, and 480
- It is strongly recommended that students take ANT 201, 202, and PHS 218 in order to have adequate preparation for Kinesiology and Exercise Physiology; however, BIO 114 and 301 will meet this requirement.

**Note:** HPR 281—Physical Education for the Elementary School is not required for those students choosing this concentration.

**Reading Concentration**
- ED 415, 421, 432, 454, 456
- TH 370

**Science Concentration—General**
- Any four of the following not previously taken to fulfill elementary education major requirements in science:
  - CHM 101, 102, 121
  - GL 101, 102, 103
  - PHY 121, 122, 123, 124, 125 and lab

**Science Concentration—Environmental**
- ED 426 (advised topic)
- Two of the following:
  - ENV 101, 111, 112, 113
  - Two of the following:
  - ENV 211, 212, 214

**Social Studies Concentration**
- In addition to the social sciences courses taken to fulfill elementary education requirements, students should select courses as follows:

**Required Courses**
- HST 218 or 219
- Two of the following:
  - GEO 101, 102, 103, 262, 271, 370
  - One political science or economics course
  - One sociology/anthropology course
  - ED 448

**Special Education Concentration—Edudcable Mentally Retarded**
- There are a number of prerequisites for entering special education programs. Please see an adviser in the College of Education and Human Services before selecting this program. Student teaching experience is required for each area of special education certification.

**Science Concentration—Learning Disabilities**
- ED 441, 454, 442, 455 (ED 441 and 455 may be taken concurrently; ED 442 and 454 may be taken concurrently.)
  - ED 458
  - HPR 200

**Special Education Concentration—Professionally Retarded**
- ED 441, 451, 452, 453, 445, 459, 302
  - ED 458
  - HPR 200

**Visual Arts Concentration**
- AED 214, 224, 332, 441, 438, 431; ART 208
  - One of the following:
  - AED 421, 423, 426, 439

**Mathematics Concentration**
- ED 413
- ED 418
- ED 370/470 (mathematics workshops recommended)

**Two of the following:**
- MTH 127, 129, 130, 131, 345; STT 164

**Physical Education Concentration**
- HPR 100, 200, 233, 241, 242, 250, 260, 350, 351, 382, 450, and 480
- It is strongly recommended that students take ANT 201, 202, and PHS 218 in order to have adequate preparation for Kinesiology and Exercise Physiology; however, BIO 114 and 301 will meet this requirement.

**Note:** HPR 281—Physical Education for the Elementary School is not required for those students choosing this concentration.

**Reading Concentration**
- ED 415, 421, 432, 454, 456
- TH 370

**Science Concentration—General**
- Any four of the following not previously taken to fulfill elementary education major requirements in science:
  - CHM 101, 102, 121
  - GL 101, 102, 103
  - PHY 121, 122, 123, 124, 125 and lab
  - Biology elective
English Education

The English education program is intended only for those seeking secondary certification. Departmental requirements are similar to those for the Bachelor of Arts degree in English, but college requirements differ. Advisers will be assigned in the College of Education and Human Services; however, all English education majors are welcome to consult the Department of English concerning the major program. It is suggested that students elect the course sequence either in American history (HST 444, 445, 446) or in British history (HST 321, 322, 323), depending on their major interest. Students are advised to consult the department for a list of the 400-level courses that will be offered during a given academic year; these courses are open only to students who have completed twelve hours of 300-level courses.

Degree Requirements—English Education

Bachelor of Science in Education Degree

Professional Education Requirements 45-47

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 321, 322, 323, 326, 327, 328, 329, 404, 432, 464, 332 16

Phase III**
ED 422, 440, 429 16-18

Related Requirements 13

PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
COM 101, 102 6

English Education Major Requirements 48

ENG 203 or CPL 201, 202, or 203 4
ENG 255 4
ENG 341 4
ENG 480 or 497 4
ENG 351 or 352; 353 or 354; 355, 356 or 357 and one other course from this group 16
At least three of the following (each from a different category): ENG 410, 420, 430, 440, 450, 460, 470 12
Elective in composition or linguistics 4

Additional General Education Requirements 28

ENG 111, 112 8
Area Two 12
Area Three A 8

Electives 56-58

Second or supporting field suggested
Recommended: HST 321, 322, 323, or 444, 445, 446

Total (minimum requirement) 192

*Field and clinical experiences required.
**May be waived with a score of nineteen or better on the math section of the ACT.

English Education as a Second Teaching Field

Forty-five credit hours are required, including ENG 111, 112, 203 (or CPL 201, 202, or 203), 255, 341, 480 or 497, ENG 351 or 352, 353 or 354, 355, 356 or 357; two electives in literature, linguistics, or writing; ED 432.

General Science Education

General science may be elected as a second teaching field only. Required are fifty-four credit hours, including BIO 111, 112, 113; CHM 121, 122, 141; PHY 111, 112, 113, 101, 102, 103; GL 101, 102, 103, 104, 105.

Geography Education

Geography education may be chosen as a second teaching field only. (See Social Studies Comprehensive Education for the major teaching field requirements in this area.) To be recommended for Ohio Provisional Certification in this teaching field, a student must also have completed the program of a major teaching field. Thirty credit hours are required, including GEO 101, 102, 103; and eighteen hours of advanced courses chosen from GEO 230, 242, 262, 302, 331, 334, 343, 365.

Health Education (Secondary, Grades 7-12)

Health education may be elected as a second teaching field only. These courses are required: ANT 201 or BIO 114, PHS 218, HPR 230, 260, 330, 380, 440, ANT 202 or BIO 202, and HPR 351 or BCH 370. HPR 380 is a prerequisite for student teaching.
History Education

The history education program prepares the student to teach history in the secondary schools. The program requires advanced work in US, European, and other history. The student must also complete the requirements of at least one second teaching field in a related social science (economics, geography, political science, or sociology). More than one supporting field is recommended (see Social Studies Education for comprehensive program). Advisers will be assigned in the College of Education and Human Services; however, students are encouraged to consult an adviser in the Department of History for specific course recommendations.

Degree Requirements—History Education

Bachelor of Science in Education Degree

Professional Education Requirements 49-51

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 321, 322, 323, 326, 327, 328, 329, 404, 432, 464, 439, 448 20

Phase III*
ED 422, 440, 429 16-18

Related Requirements 13
PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
COM 101, 102 6

History Education Major Requirements 48
HST 300, 498 8
US history (upper division) 8
European history (upper division) 8
Other history (Canadian, Latin American, African, Asian) 8
History electives 16

Related Social Science Second Teaching Field 32
Courses to complete the requirements of a second teaching field in one of the following areas: economics, geography, political science, or sociology

Additional General Education Requirements 24
Area One 8
Area Two 12
Area Three B (REL 110, 111, or 112 recommended) 4
Electives 24-26

Total (minimum requirement) 192

*Field and clinical experiences required.
**May be waived with a score of nineteen or better on the math section of the ACT.

History Education as a Second Teaching Field

Forty-five credit hours of history are required, including at least two advanced courses in each of the following areas: US history, European history, and other history as defined above.

Latin Education

Latin education may be elected as a second teaching field only. Thirty credit hours are required, beginning at the 201 level or above. Remaining hours may be distributed among LAT 351, 353, 355, 357, 451, 453, and 455; these courses are repeatable by number but not by content. Greek, classical humanities, and linguistics courses are recommended.

Mathematics Education

The mathematics education program prepares students to teach mathematics in the secondary schools. A student may select either a physics sequence or a computer science sequence to fulfill the mathematics education major requirements.

Degree Requirements—Mathematics Education

Bachelor of Science in Education Degree

Professional Education Requirements 48-50

Phase I*
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II*
ED 326, 327, 328, 329, 404, 432, 464, 318, 338, 321, 322, 323 19

Phase III*
ED 422, 440, 429 16-18
Modern Languages Education

Degree Requirements—Modern Languages Education

Bachelor of Science in Education Degree

Professional Education Requirements 45-47

Phase I
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

Phase II
ED 326, 327, 328, 329, 404, 432, 464, 332 or 334, 321, 322, 323 16

Phase III
ED 422, 440, 429 16-18

Modern Languages Education as a Second Teaching Field

Modern languages may be chosen as a second teaching field. A student may prepare to teach French, German, or Spanish by following one or more of the following programs. Two years of credit in high school language or the equivalent first-year college courses (101, 102, 103) are prerequisite for each program. The following sequence is recommended: 101, 102, 103, 201, 202, 321, 322, 341, 342, 361 (French and Spanish only; German majors need one elective) and eight hours of literature. (Students able to demonstrate proficiency in 101, 102, 103 courses may add these to their transcripts as proficiency credit courses or may elect upper-level courses to complete the forty-five credit hour certification requirements. The latter is preferred.)
### Physical Education K-12

#### Degree Requirements—Physical Education K-12

**Bachelor of Science in Education Degree**

**Professional Education Requirements** 39-41

<table>
<thead>
<tr>
<th>Phase I*</th>
<th>ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase II*</td>
<td>ED 321, 322, 323, 326, 327, 328, 329, 321, 322, 323</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ED 403 or 404</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HPR 382</td>
<td>3</td>
</tr>
</tbody>
</table>

**Phase III***

| ED 422, 440, 429 | 16-18 |

**Related Requirements** 13

| PSY 111 (General Education, Area Three A— one course) | 4   |
| COM 101, 102                                           | 6   |
| MTH 127 or 304**                                       | 3   |

**Physical Education Major Requirements** 96-102

| ANT 201, 202 | 8   |
| PHS 218      | 5   |
| HPR 200, 233, 241, 242, 250, 260 | 18  |
| HPR 340, 350, 351, 355, 440, 450, 480 | 25  |

**Sports Skills Requirement** 12

Sixteen different sports (thirty-three credit hours) are required; twelve credit hours count toward graduation. This requirement can also be met by proficiency examination (five sports maximum), by transfer credit (five sports maximum), or by participation on a varsity team. Must complete minimum of five sports at Wright State University.

**Concentration** 28-34

Choose one from the following:

- Adapted Physical Education, Aquatics, Athletic Training, Coaching, and Research

**Additional General Education Requirements** 24

| Area One | 8   |
| Area Three A | 8   |
| Area Three B | 4   |
| Area Three A or B | 4   |

**Electives or Second Teaching Field** 12-20

**Total (minimum required)** 192

*Field and clinical experiences required.

**May be waived with a score of nineteen or better on the math section of the ACT.

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### Physical Education (Secondary, Grades 7-12) as a Second Teaching Field

These courses are required: ANT 201, 202; PHS 218; HPR 200, 241, 242, 260, 340, 350, 351, 355, 382, 480. Each student is also required to meet a nine-course sports skill requirement. The specific sports skill requirements are on file in the HPR office, 121 Physical Education Building.

For students in this second teaching field, the three-course sequence of ANT 201, 202, and PHS 218 may be used for meeting the General Education science requirement. This credit is therefore not included in the total credit hours for this second field.

HPR 382 and seventy-five percent of the sports skill requirement are prerequisites for student teaching.

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### Physics Education

The physics education program prepares students to teach physics, integrated physical science, and general science in the secondary school. The concentration in physics provides intensive preparation in that area with courses in modern physics, electricity and magnetism, and analytical mechanics. The program also includes basic and supporting courses in biology, earth science, and chemistry, related course work in mathematics, and the required professional education courses. Students are strongly advised to complete a second teaching field in biological sciences, chemistry, earth science, or mathematics, in addition to the basic program in physics.

#### Degree Requirements—Physics Education

**Bachelor of Science in Education Degree**

**Professional Education Requirements** 45-47

<table>
<thead>
<tr>
<th>Phase I*</th>
<th>ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase II*</td>
<td>ED 326, 327, 328, 329, 404, 432, 464, 431, 321, 322, 323</td>
<td>16</td>
</tr>
<tr>
<td>Phase III*</td>
<td>ED 422, 429, 440</td>
<td>16-18</td>
</tr>
</tbody>
</table>

**Related Requirements** 10

| PSY 111 (General Education, Area Three A— one course) | 4   |
| COM 101, 102                                         | 6   |

---

*Field and clinical experiences required.

**May be waived with a score of nineteen or better on the math section of the ACT.
Physics Concentration Requirements 98
PHY 240, 241, 242, 243, 200, 201, 202 (General Education, Area Two) 17
PHY 260, 450, 451, 452 13
PHY 314, 371, 372 9
BIO 111, 112, 114 12
CHM 121, 122, 141 15
GL 101, 102, 103, 104, 105 12
MTH 132, 133, 231, 233 20
Additional General Education Requirements 24
Area One 8
Area Three A 8
Area Three B 4
Area Three A or B 4
Electives 13-15
STT 265 recommended
Total (minimum requirement) 192

*Field and clinical experiences required.

Physics Education as a Second Teaching Field
Physics education as a second teaching field requires thirty and one-half credit hours including PHY 240, 241, 242, 243, 200, 201, 202, and CHM 121, 122, 141.

Political Science Education
Political science may be chosen as a second teaching field only. (See Social Studies Comprehensive Education for the major teaching field requirements in this area.) To be recommended for Ohio Provisional Certification in this teaching field, a student must also have completed the program of a major teaching field. Thirty-two credit hours are required, including PLS 112, 113; and twenty-four hours chosen from PLS 122, 123, 204, 225, 226, 231, 326, 340, 380.

Rehabilitation Education
The major in rehabilitation education prepares students for employment in a variety of settings providing activities related to services for the physically/mentally disabled and socially disadvantaged. The rehabilitation education curriculum also offers an academic concentration in mental health. Upon completion of degree requirements, students are also prepared for entrance into graduate programs in rehabilitation counseling or related areas. The program is flexible and can be individualized to suit interests of the student.

Degree Requirements—Rehabilitation Education/Generalist Concentration
Bachelor of Science Degree
Professional Education Requirements 54
RHB 201, 202, 301, 303, 304 20
RHB 401, 402, 403, 404, 407 28
ED 445, CNL 461 6
Related Requirements 76
Political science, American history, economics, and management 20
BIO 101, 102, 103 (General Education, Area Two) 12
Sociology and Anthropology 16
Psychology; must include PSY 305 20
Communication; must include COM 205 8
Additional General Education Requirements 16
Area One 8
Area Three B 8
Electives 46
Total (minimum requirement) 192

*Because of an articulation agreement with Sinclair Community and Clark Technical Colleges, graduates of their mental health/social services program may apply many of their previous courses to the Mental Health concentration. Other students must also complete related requirements listed in the Generalist program.
### Science Comprehensive Education

The completion of the science comprehensive program permits students to teach any science course offered in the secondary school. The program includes basic and supporting courses in physics, chemistry, biology, earth science, mathematics and the professional education courses required of all candidates for secondary school certification.

**Degree Requirements—Science Comprehensive Education**

**Bachelor of Science in Education Degree**

<table>
<thead>
<tr>
<th>Professional Education Requirements</th>
<th>45-47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I*</td>
<td></td>
</tr>
<tr>
<td>ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223</td>
<td>13</td>
</tr>
<tr>
<td>Phase II*</td>
<td></td>
</tr>
<tr>
<td>ED 326, 327, 328, 329, 404, 432, 464, 431, 321, 322, 323</td>
<td>16</td>
</tr>
<tr>
<td>Phase III*</td>
<td></td>
</tr>
<tr>
<td>ED 422, 440, 429</td>
<td>16-18</td>
</tr>
</tbody>
</table>

**Related Requirements**

- PSY 111 (General Education, Area Three A—one course) 4
- COM 101, 102 6

**Science Comprehensive Education Major Requirements**

| MTH 127 or 304* | 38
| MTH 132, 133    | 10
| COM 101, 102    | 6
| Phase I*        | 13
| Phase II*       | 20
| Phase III*      | 16-18

**Total (minimum requirement)** 192

*Field and clinical experiences required.

### Social Studies Comprehensive Education

The social studies comprehensive program prepares students to teach integrated social studies and all component areas in which they have at least eighteen credit hours of course work. The program consists of basic and advanced courses in American history, world history, political science, economics, sociology, and geography; advanced courses in US history and non-US history; and a concentration of advanced courses in one or more social science fields.

**Degree Requirements—Social Studies Comprehensive Education**

**Bachelor of Science in Education Degree**

<table>
<thead>
<tr>
<th>Professional Education Requirements</th>
<th>49-51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I*</td>
<td></td>
</tr>
<tr>
<td>ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223</td>
<td>13</td>
</tr>
<tr>
<td>Phase II*</td>
<td></td>
</tr>
<tr>
<td>ED 321, 322, 323, 326, 327, 328, 329, 404, 432, 464, 439, 448</td>
<td>20</td>
</tr>
<tr>
<td>Phase III*</td>
<td></td>
</tr>
<tr>
<td>ED 422, 440, 429</td>
<td>16-18</td>
</tr>
</tbody>
</table>

**Related Requirements**

- PSY 111 (General Education, Area Three—one course) 4
- MTH 127 or 304** 3
- COM 101, 102 6

**Social Studies Comprehensive Education Major Requirements**

**General Social Studies Sequence**

| EC 201, 202, 203 | 9
| GEO 101, 102, 103 (choose two) | 8
| PLS 112, 113 | 8
| SOC 111, 112 | 8
| ANT 140 | 4
| HST 300 | 4
| HST 498 | 4
| US History | 8
| European History | 8
| Electives chosen from Canadian, Latin American, and/or Asian history | 24
| Additional courses in two of the following areas: sociology, economics, geography, political science | 24

**Total (minimum requirement)** 93
Additional General Education Requirements 23
Area One 8
Area Two 12
Area Three B 3
Electives 11-13
Total (minimum requirement) 192
*Field and clinical experiences required.
*May be waived with a score of nineteen or better on the math section of the ACT.

**Sociology Education**

Sociology education may be chosen as a second teaching field only. (See Social Studies Comprehensive Education for the major teaching field requirements in this area.) To be recommended for Ohio Provisional Certification in this teaching field, a student must also have completed the program of a major teaching field. Thirty credit hours are required, including SOC 111, 112, and twenty-four hours chosen from SOC 210, 221, 301, 340, 360, 363, 444.

**Special Education**

Students can meet Ohio certification requirements in either educable mental retardation, learning disabilities/behavior disorders, or moderately, severely, profoundly retarded (MSPR). In each case, the basic elementary education program is followed and dual elementary/special education certification is strongly suggested. Secondary education and noneducation majors may add educable mental retardation or MSPR as a certification area by completing the courses listed below. Learning disabilities/behavior disorders requires prior or simultaneous certification in another area of education. Noneducation majors who are interested in this latter area should contact an adviser in special education.

All students are required to complete thirty hours of noncredit volunteer work with exceptional children and a special education entrance conference. Details are available from the certification adviser's office or the special education office.

**Certification Requirements—Special Education**

Mental Retardation Concentration
Add these courses to professional requirements:
ED 441, 454, 455, 442, 445, 458, 456, 302* 27
HPR 200 3

Learning Disabilities Concentration
Follow the elementary education program. Add these courses to professional requirements:
ED 441, 454, 455, 442, 456, 302* 24
HPR 200 3

Moderately, Severely, Profoundly Retarded Concentration
Follow the elementary education program. Add these courses:
ED 441, 445, 302, 459, 451, 452, 453, 458 27
HPR 200 3

Secondary and Noneducation Majors
The following courses must be taken before entering the concentrations:

**Phase I**
ED 211-217 13
ED 403, 317* or 415* or 432, 318* 9
MTH 343 or equivalent 4

Certification Students
Students with a bachelor's degree desiring certification only should contact an adviser in special education.

*Participation experiences required.

**Speech and Theatre Education**

The speech and theatre education major must elect either a communication or theatre arts concentration to be combined with English as a second teaching field. The program is designed to prepare students to teach communication and theatre in the secondary schools.

**Degree Requirements—Speech and Theatre Education**

**Bachelor of Science in Education Degree**

Professional Education Requirements 45-47

**Phase I**
ED 211, 212, 213, 214, 215, 216, 217, 221, 222, 223 13

**Phase II**
ED 326, 327, 328, 329, 404, 432, 464, 333 or 332, 321, 322, 323 16

**Phase III**
ED 422, 440, 429 16-18

Related Requirements 7
PSY 111 (General Education, Area Three A—one course) 4
MTH 127 or 304** 3
### Speech and Theatre Education Major

#### Requirements

<table>
<thead>
<tr>
<th>Core Courses:</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 101, 102, 111</td>
<td>10</td>
</tr>
<tr>
<td>TH 101, 102, 220</td>
<td>11</td>
</tr>
</tbody>
</table>

**One of the following concentrations:**

<table>
<thead>
<tr>
<th>Communication Concentration</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 141, 232, 233, 252, 312 or 313, 335 and seventeen hours of approved elective hours in communication courses</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theatre Concentration</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH 144, 145, 146, 244, 245</td>
<td>25</td>
</tr>
<tr>
<td>TH 350, 352</td>
<td>6</td>
</tr>
<tr>
<td>Three of the following:</td>
<td>9</td>
</tr>
<tr>
<td>TH 360, 361, 366, 367, 368</td>
<td></td>
</tr>
</tbody>
</table>

**Additional General Education Requirements**

| Area One | 8 |
| Area Two | 12 |
| Area Three A | 8 |

**English Requirements**

(required second teaching field)

| ENG 203 (or CPL 201, 202, 203), 255, 341, 480 or 497 | 36 |
| ENG 351 or 352, 353 or 354, 355 or 356 or 357, two electives in literature, linguistics or writing, ED 432 |

| Electives | 14-16 |

**Total (minimum requirement)**

192

*Field and clinical experiences required.
**May be waived with a score of nineteen or better on the math section of the ACT.

### Allied Health Professions Program

The Allied Health Professions Program offers the fourth, clinical year of training for medical technologists. For information about the first three years, see the Biological Sciences section of the College of Science and Engineering chapter.

The Allied Health Professions Program was established in 1980 to meet the growing need for educational opportunities for highly skilled allied health practitioners. The general aims of this new academic unit are to provide continuing education programs for allied health professionals; to promote interaction, cooperation, and articulation with the various undergraduate programs at Wright State University, as well as other educational institutions in Western Central Ohio; to develop and implement curricula of recognized quality to meet the needs of practitioners/students; and to generate and apply new knowledge for the improvement of health delivery services.

### Medical Technology Clinical Year

The Allied Health Professions Program offers the medical technology student a comprehensive fourth-year clinical rotation which enables him/her to master the skills and competencies needed to become a qualified practitioner. The curriculum includes twelve weeks of basic laboratory training at the Wright State University School of Medicine, followed by a forty-week rotation among five cooperating affiliated clinical facilities.

### Prerequisites

Admissions to the fourth year program are stipulated by the Committee on Allied Health Education and Accreditation of the American Medical Association, developed in cooperation with the National Accrediting Agency for Clinical Laboratory Sciences. The applicant must have ninety semester units, including the following course prerequisites: chemistry (a minimum of sixteen semester or twenty-four quarter hours), biological sciences (a minimum of sixteen semester or twenty-four quarter hours); immunology, mathematics (a minimum of one course); and electives.

### Application and Admission

Applicants should submit application material and schedule an interview with the Medical Technology Program director during the fall quarter of the junior year preceding entry into the program. Applications from students enrolled at Wright State University are processed by the Department of Biological Sciences. Nonaffiliated applicants must meet the same requirements as junior students and will be advised by the Medical Technology Program director. Medical technologists who have been trained in foreign institutions or who wish to augment their credentials may be considered for admission. Admission to Wright State University does not automatically ensure admission into the clinical year.

### Curriculum Outline

#### Course Requirements

| MT 434, 435 | 4 |
| MT 436, 437 | 10 |
| MT 438, 439 | 10 |
| MT 440, 441 | 5 |
| MT 442, 443 | 8 |
| MT 444, 445 | 6 |
| MT 446, 447 | 5 |
| MT 448 | 2 |
| MT 449 | 2 |
| MT 450 | 1.5 |

**Total** 53.5
Liberal Arts
The College of Liberal Arts offers a wide variety of degree programs in the fine arts, the humanities, and the social sciences. The college also assists in preparing students for professional and graduate study and cooperates with other colleges in offering joint professional and preprofessional programs. In addition, the college offers the major portion of General Education courses that comprise a fund of knowledge basic to a student’s ability to formulate and analyze ideas and concepts. This core of knowledge is the nucleus of a liberal education.

Programs leading to the Bachelor of Arts degree are offered in anthropology, art and art history, classical humanities, communication, communication disorders, economics, English, environmental studies, French, geography, German, Greek, history, Latin, motion pictures, music, philosophy, political science, religion, selected studies, social work, sociology, Spanish, theatre, and urban studies. Programs leading to the Bachelor of Fine Arts degree are offered in art, dance, selected studies, and theatre arts. A program leading to the Bachelor of Science degree is offered in geography and urban studies. Programs leading to the Bachelor of Music degree are offered in performance, music education, music theory, music history and literature, and music composition. The college offers minors in French, German, and Spanish through the Department of Modern Languages. Students who meet the university requirements with reference to registration, residence, scholarship, fees, and General Education and college requirements, and who maintain a satisfactory record, receive degrees appropriate to the curriculum completed.

The college offers graduate programs leading to the Master of Arts degree in English and history, and the Master of Humanities and the Master of Music degrees in music education, and participates with the College of Science and Engineering in a multidisciplinary program leading to the Master of Arts degree in applied behavioral science.

Admission and Advising

Admission Requirements

Admission to the College of Liberal Arts requires the satisfactory completion of twenty-four credit hours and a grade point average of 2.0. Some departments have additional requirements for admission. Students not meeting such criteria are designated as Undecided—Liberal Arts.
Transfer Credit
Credits earned in junior or community colleges will normally apply only to the requirements of the freshman and sophomore years. Students should consult their departmental adviser to see which transfer courses will apply toward specific major requirements.

Advising
The liberal arts advising office advises all undecided majors in liberal arts. A student who has declared a major in one of the liberal arts disciplines is assigned an academic adviser in that discipline.

Degrees and Areas of Study

The Bachelor of Arts Degree
Successful study for the Bachelor of Arts degree includes the development of basic skills as well as a general introduction to issues of the culture. The degree provides career opportunities in such areas as communications, foreign service, government, journalism, teaching, and social work, and preprofessional training for such fields as law, medicine, and business.

In addition to requirements of the major, composed of a departmental unit in courses taken in one or more departments, the Bachelor of Arts degree includes the following: a minimum of 100 hours of course work in the College of Liberal Arts and completion of the foreign language or research methods requirement. Except in unusual circumstances the student is limited to sixty-eight hours in the major department; exceptions must have prior approval of the dean of the college. To satisfy the foreign language requirement, a student must demonstrate proficiency at the 202 level in a foreign language either by satisfactorily completing course work or by examination. The student who wishes to fulfill the college language requirement in French, German, Spanish, or Russian by proficiency testing should consult the Department of Modern Languages; the student who wishes to fulfill the requirement in Greek or Latin should consult the Department of Classics. Other languages are acceptable, subject to approval by the Department of Modern Languages and the student's major department. In continuing a language begun elsewhere, the student is placed at an appropriate level. For details on proficiency and placement testing, see guidelines under Department of Modern Languages. The student who selects the research methods option must complete twenty-one to twenty-four credit hours, approved by his/her major department, distributed as follows: computer science (two courses); logic (two courses) or logic (one course) and philosophy of physical or social science (one course); statistics (two courses). Political science and philosophy courses used to fulfill the research methods requirement may not also be applied to General Education, Area Three A and B requirements. The student should check with the department for further details. One or the other requirement must be satisfied in its entirety, they may not be mixed. All candidates for a degree in the college must complete a minimum of 192 hours with at least a 2.0 cumulative average.

Bachelor of Fine Arts, Bachelor of Science, and Bachelor of Music Degrees

Bachelor of Fine Arts
The curricula for the B.F.A. degree provide more specialized training than that offered in the B.A. programs. The Bachelor of Fine Arts programs in art and in theatre arts are preprofessional programs with intensive concentrations in the departmental major and related concentrations in the creative arts.

Bachelor of Science
Curricula for the Bachelor of Science degree are offered in geography and urban studies. Those programs should be planned in close consultation with advisers in these areas. The B.S. degree attempts to achieve a different focus, especially in the areas of computer programming, mathematics, and statistics, and to meet needs not currently serviced by the B.A. degree.

Bachelor of Music
This degree is designed for the student who is seeking a professional career in music. Consequently, the B.Mus. major is a more concentrated, more highly structured program than the program for the B.A. The Bachelor of Music in performance requires language competence in either French, German, or Spanish. The Bachelor of Music in theory requires language competence in either French or German. The Bachelor of Music in history and literature requires language competence in French, German, or Latin. For further details, see the Department of Music.

In addition to the university and college degree requirements, the student should always consult the requirements of the curriculum specified by the appropriate department.
Interdisciplinary Study
Interdisciplinary majors within the College of Liberal Arts are offered in selected studies and urban studies.

Interdisciplinary course work, offered jointly by participating departments within the college or with departments in other colleges, is available in the Departments of Art and Art History, Classics, Communication, English, Geography, History, Philosophy, Political Science and Urban Affairs, Religion, and Sociology and Anthropology. See individual programs and course listings.

Dual Major in Liberal Arts and Environmental Studies
Students who elect the dual major in liberal arts and environmental studies fulfill the major requirements for a liberal arts field, in addition to the major requirements for environmental studies. For a detailed description of the program, see environmental studies.

Combined Liberal Arts/ Business Program
While working on the satisfactory completion of a baccalaureate degree program in the College of Liberal Arts, a student can use free elective credits to take a professional core of business courses to earn a minor in business and satisfy the course prerequisites for the Master of Business Administration program. Students with an adequate Admission Index can then earn an M.B.A. degree from the College of Business and Administration with an additional (fifth) year of successful full-time study. See the college adviser for details.

Honors at Graduation
Honors are awarded at graduation to students in recognition of the superior quality of their work. Currently, departmental honors programs are available in anthropology, art history, classics, communication, music, selected studies, English, geography, history, modern languages, political science, religion, social work, and urban studies. A student interested in pursuing an honors program as prescribed by one of these departments should consult with the chair of the appropriate department.

Cooperative Education Program
A number of departments in the College of Liberal Arts offer an optional cooperative education program for academic credit. (See the Liberal Arts listing in the course descriptions section.) Cooperative education is a plan which combines academic study with related work experience. As a result, participation in cooperative education provides the student with an opportunity to apply classroom learning and interest to practical work settings while exploring potential career fields. For more information, see the specific Liberal Arts department programs and contact the Liberal Arts cooperative education coordinator in the Cooperative Education office.

Teacher Certification
The Bachelor of Arts degree with Ohio teacher certification is offered in art, English, and history for students who meet the requirements of the College of Liberal Arts and the College of Education and Human Services. Certification in speech and theatre education is available to the student who combines it with English as a second teaching field. French, German, Latin, and Spanish may be elected as second teaching fields only. These candidates are counseled in their academic programs by faculty advisers in the College of Liberal Arts and in their choice of fulfillment of professional education requirements by advisers in the College of Education and Human Services. Prospective teachers who wish to pursue the Bachelor of Science in Education degree with a major in one of the liberal arts disciplines should register in one of the teacher education curricula in the College of Education and Human Services and indicate their choice of teaching fields. See individual programs under College of Education and Human Services.

Anthropology
See Sociology and Anthropology

Art and Art History
Professor Cantelupe
Associate Professors Dunkelman, Koerlin, Leach, Macaulay, McDowell (chair), Must, Nathanson
Assistant Professors Bruce, Fitch, Geibert, Kiser

The Department of Art and Art History offers programs leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees, with areas of concentration in art history, drawing, film/video, painting, photography, printmaking, and sculpture; and with course sequences in visual communications and museology/gallery management. The B.A. degree is designed for those students who wish to combine a liberal education with specific studies in art. The B.F.A. degree is designed for students who want to pursue a more intense professional studio program in art.
Because self-expression and self-learning are ultimate goals of the program, the student is largely responsible for determining the options which best meet individual needs and interests.

In the studio area, studies begin with introductory courses in drawing, sculpture, and film/photography. These courses are designed for the beginning artist and will direct and accelerate development in the visual arts. One resource which students bring to the program is their personal sensibility and understanding. The program aids in expanding and expressing these qualities by exploring the essential processes and language basic to all visual arts. Rather than following a system or structure of independent courses in a given dimension, medium, or discipline, issues and ideas are investigated in a variety of visual modes.

Students are required to have their work reviewed by the entire staff. The review for the B.A. is conducted when the student has completed between thirty-two and forty credit hours in the department. The B.F.A. review is normally conducted when the student has completed between forty and sixty credit hours in the department. Those who wish to become B.F.A. candidates must petition the faculty at the time of their review. The department will notify the student in writing of its decision. Students who do not meet the basic proficiency standards of the department during their first review may petition to have a second review of their work prior to the completion of eighty-four credits in art. All candidates for the B.F.A. degree must make a senior presentation of their work.

Students who wish to apply for transfer credit in art must submit a qualifying portfolio of studio work completed at another institution. Transfer credit is determined upon review of the work by members of the art faculty. First-year students are required to submit examples of their work only if they are seeking advanced placement; otherwise, all first-year students in art are admitted to the general curriculum. Unless and until a transfer review for advanced placement is requested by a transfer student and conducted by the faculty, all studio transfer students, regardless of experience, will begin their studies with Introduction to Color (ART 209), or the first of the three beginning level courses offered, Fundamentals of Drawing (ART 206), Introduction to Photo/Film (ART 207), or Fundamentals of Sculpture (ART 208), and continue with prerequisite sequences.

Candidates for a degree in art may prepare for graduate study, careers in teaching, or the professional practice of art. Candidates for the B.A. or B.F.A. with teaching certification must complete specific requirements as outlined by the laws and regulations governing Ohio teachers’ education and certification.

Art History Honors Program

The Department of Art and Art History Honors Program is designed to give students who have demonstrated outstanding academic ability and superior accomplishments in art history the opportunity to complete a program which will encourage and recognize their distinguished efforts. Such students may earn an honors degree by completing the departmental major requirements, by maintaining a high academic record, and by completing successfully a senior honors project. Information regarding eligibility, application procedures, and specific requirements may be obtained from the Department of Art and Art History office. Students are usually admitted to the program during the fourth quarter prior to graduation.

Degree Requirements—Art Bachelor of Fine Arts Degree

General Education Requirements 47

Departmental Requirements* 122

ART 211, 212, 213 and three additional art history courses 24

ART 206, 228 8

Eight courses, two each from four of the following studio areas: painting, printmaking, sculpture, photography, film/video 32

Five additional courses in area of major concentration 20

Senior seminar 2

Departmental electives 28

Departmental or related electives 8

Nondepartmental Electives 23

Total 192

* B.F.A. degree students should enroll in two studio courses each quarter.

Sophomore Review Minimum Requirements

ART 211, 212, 213 12

ART 206, 228 8

Two courses from two of the following studio areas: painting, printmaking, sculpture, photography, film/video 16

One additional studio course 4

Total 40
Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 68

ART 211, 212, 213 and one additional art history course 16
Eight courses, two each from four of the following studio areas: drawing, painting, printmaking, sculpture, photography, film/video 32
Departmental electives 20

Foreign Language or Research Methods Requirement 20-24

Nondepartmental Electives 53-57

Total 192

Sophomore Review Minimum Requirements

ART 211, 212, 213 12
Two courses from two of the following studio areas: drawing, painting, printmaking, sculpture, photography, film/video 16
One additional studio course 4

Total 32

Degree Requirements—Art History

Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 48

ART 211, 212, 213 and one course in art theory, art philosophy, or art criticism 16
One course each from four of the following art history areas: American, ancient-classical, medieval, Renaissance, Baroque, nineteenth century, twentieth century, non-western 16
Three courses, one each from three of the following studio areas: drawing, painting, printmaking, sculpture, photography, film/video 12
Senior paper in consultation with art history faculty (ART 406) 4
Departmental electives 20

Foreign Language or Research Methods Requirement 20-24

Nondepartmental Electives 53-57

Total 192

Classics

Associate Professors C. King, W. King (chair)

Instructor Gabbert

The Department of Classics offers majors leading to the Bachelor of Arts degree in classical humanities and in classical languages (Greek or Latin).

The study of the classics is concerned with the examination of the civilizations of Greece and Rome. It is the oldest area-study and the student must range through the disciplines of language and literature, art, archaeology, and history to appreciate fully the contributions of Greece and Rome to Western civilization.

Requirements for the major in classical humanities are quite flexible, but it is advisable for students to consult the Department of Classics in order to ensure a well-rounded and representative curriculum. The one inflexible requirement is study of Latin or Greek on the college level; the classical humanities major must complete at least twenty-four hours of language study and attain proficiency in at least one of the languages beyond the 202 level. A major can also be taken in either Greek or Latin; the student will be expected to develop some facility in the nonmajor language.

The major in classical humanities is a useful major for those who have not decided upon a specific vocation and who are interested in the humanities. A bachelor’s degree in classical humanities is suitable for students who plan to terminate their formal education at the undergraduate level. The major in classical languages is more suitable for students who wish to continue their studies on the graduate level; the areas of ancient history and classical archaeology as well as classics are open to them. The student who majors in either classical humanities or classical languages will find the bachelor’s degree useful in any position for which a liberal arts degree is appropriate.

Early consultation with the Department of Classics is important for students who wish to teach Latin or Greek in secondary schools. They will also need to consult the College of Education and Human Services for professional certification requirements and should consider meeting certification requirements in an additional teaching field, such as English or history.

Classics Honors Program

Superior students may, upon application to the Department of Classics, participate in the departmental honors program. They should have a grade point average of 3.5 in classics and 3.0 overall and should have completed a substantial portion (twenty-seven to thirty hours) of the major requirements. For further details, consult the department.
Degree Requirements—
Classical Humanities
Bachelor of Arts Degree
General Education Requirements 47
Departmental Requirements 56
Greek or Latin language 24
Classical humanities electives 32
Electives and Related Courses 89
Total 192

Degree Requirements—Greek
Bachelor of Arts Degree
General Education Requirements 47
Departmental Unit 56
Greek language 36
Electives in classical humanities or Latin language 20
Electives and Related Courses 89
Total 192

Degree Requirements—Latin
Bachelor of Arts Degree
General Education Requirements 47
Departmental Requirements 56
Latin language 36
Electives in classical humanities or Greek language 20
Electives and Related Courses 89
Total 192

Communication
Professors Pruett (chair), Shupe
Associate Professors Byrum-Gaw, Dreher, B. Eakins, G. Eakins, Rickert, Sayer, Welty
Assistant Professors Fetzer, Orenstein
Instructors Ervin, O’Neill, Pangos

The Department of Communication embraces the broad spectrum of communication. Students are encouraged to develop abilities as effective communicators and as informed, critical receivers. Department objectives include practical as well as theoretical approaches to the understanding of communication; scientific as well as humanistic avenues of inquiry; and historical as well as contemporary perspectives. Together, these diverse dimensions provide students with a sense of historical roots, comprehension of human interaction, an appreciation of the aesthetics of experience, and a grasp of the totality of factors that influence and direct communication.

Communication Honors Program
The honors program of the Department of Communication provides opportunities for advanced study to outstanding students. The program is intended as an enrichment for the existing program rather than as an alternative. The immediate goals for which individual student programs are constructed include: (1) developing abilities in conceptualization, research, and analysis, and (2) pursuing one or more selected areas of interest in the field of rhetorical/communication studies.

Entrance to the program requires the student to have completed forty credit hours in communication and the core requirements in liberal arts. In addition, the student must have a grade point average of 3.5 in the major and 3.0 overall. Departmental honors will be awarded upon the completion of the required number of hours necessary for a major in communication and must include at least twelve credit hours in approved communication honors courses. The student must also complete a departmental honors project and maintain a 3.0 cumulative grade point average and a 3.5 grade point average in communication courses during the quarters in which a student is a member of the honors program.

It is highly recommended that the student participate in the University Honors program, taking courses deemed relevant by the student and the adviser.

Cooperative Education Program
Cooperative education experience is available to qualified communication majors in both the public and private sectors. Cooperative job opportunities exist in the areas of mass communication, interpersonal and organizational communication, and public communication. Cooperative education offers students a means of partially financing their education while gaining career-oriented experiences. Students interested in cooperative education opportunities should contact the chair of the department.
Degree Requirements—Communication

Bachelor of Arts Degree

The major in communication is for students who wish to specialize in public communication, mass communication, or interpersonal and organizational communication. The major offers the student preparation for a variety of careers in education, industry, and government.

Communication majors are expected to achieve basic proficiency in communication skills and to master the essentials of rhetorical and communication theory. All communication majors must take twenty-eight hours of required courses, as well as a minimum of thirty-six hours of electives in communication. In addition, they must take twelve of twenty-four related hours in a single department other than communication. This requirement is determined by each student with the guidance and approval of an adviser. All communication majors are expected to participate in communication activities outside the university.

Communication majors may qualify for state certification at the secondary level by taking the required professional courses in the College of Education and Human Services.

General Education Requirements 47

Departmental Requirements 64

Required courses:
COM 101, 102, 111, 141, 203, 233, 252, 335 28
Minimum electives in major 36

Related Requirements 24

At least twelve hours in one field related to the student’s special interests: to be chosen with adviser's approval. Electives in business, classics, English, motion pictures, history, philosophy, political science, psychology, sociology, and theatre

Foreign Language or Research Methods Requirement 20-24

Electives 33-37

Total 192

Dance

See Theatre Arts

Economics

Professors  Anon, Blair (chair), Fabrycy, Kumar, Premus, Renas, Treacy

Adjunct Professor  Verdon

Associate Professor  Blake

Assistant Professor  Fichtenbaum

Assistant Visiting Professors  Dung, Shahidi

Adjunct Assistant Professor  Wechsler

The dimensions of economics range from the practical concerns of how a business firm strives for efficiency to the visionary questions concerning limits imposed by the laws of nature on the earth’s population and natural resources. Economics focuses on man’s efforts to improve his welfare, by understanding individual decision making in the face of relative scarcity and by studying the complex relationships between the production, consumption, and distribution of material goods within systems of markets, governments, and supranational institutions.

Students of economics develop the ability to reason logically, integrate broad perspectives, measure empirically, manipulate in the abstract, and imagine grandly. These skills and talents serve well in preparing students for careers in business, law, and government and for graduate programs in economics, business, and law. Graduates of our program are employed as professional economists in such diverse areas as urban economics, manpower and training analysis, business forecasting, school finance consulting, health and delivery systems evaluation, budget analysis, marketing consulting, government planning, and statistical analysis. Some of our graduates continue their education in our master’s program in social and applied economics.

The program outlined below is designed to give our students both the background that will broaden and maintain their future options and the specific skills necessary to use and apply economic ideas. Departmental undergraduate advisers are available to any student who may wish advice about formulating and attaining career goals, as well as making decisions concerning elective courses.

Candidates for a Bachelor of Arts degree with a major in economics are required to take a minimum of forty-two credit hours in the Department of Economics. Basic courses are supplemented by economics electives.

Degree Requirements—Economics

Bachelor of Arts Degree

General Education Requirements 38

Waive nine hours of Area Three
Departmental Requirements 42
EC 201, 202, 203 9
EC 315, 316, 317 12
Economics electives 21

Related Requirements 23-26
MTH 129, 224, 226 (226 recommended only) 6-9
QBA 201, 202, 303 9
Two upper-division courses in one of the following areas: political science, philosophy, English, psychology, sociology, geography, or history 8

Foreign Language or Research Methods Requirement 15-20

Electives 66-74

Total (minimum requirement) 192

English

Professors
Baker, Bracher, Cantelupe, N. Cary, Harden, Hussman (chair), Pacerick, Swanson, Wetmore, Whissen

Associate Professors
C. Cary, Correale, Gleason, Howard, Hughes, Limouze, Maner, Pringle, Sammons

Assistant Professors
Hagen (WOBC), Moliterno (WOBC), Snyder (WOBC)

Instructors
Catto, Pinard, Reichert

The English major is designed to provide a balanced program of elementary and advanced work in English and American literature, English language and linguistics, and writing. The program offers the opportunity for systematic study of a major humanistic discipline as well as sound professional training suitable for those planning high school teaching, a business career, or graduate work. The program also provides an excellent background for students interested in entering professional schools.

In choosing electives, students should try to elect, in consultation with the departmental adviser, courses that will supplement or complement their major interest and that will form a coherent unit of study. English majors must also satisfy a foreign language or research methods requirement. Students may satisfy this requirement by completing the second-year course (202) in a foreign language, by equivalent proficiency examination, or by courses chosen from the research methods core.

Candidates for certification in high school and junior high school English teaching may earn a Bachelor of Arts degree by completing the language or research methods requirement described above and distributing their English courses as outlined in the program of study for English with certification. In addition, the B.A. with certification student must take the professional education courses prescribed by the College of Education and Human Services. Early in their program, all English majors seeking certification should review their programs with a teacher certification adviser in the College of Education and Human Services to ensure fulfillment of the necessary requirements for certification.

English Honors Program

The honors program in English is designed to encourage and recognize superior academic accomplishments by undergraduate English majors. With the approval of the chair of the English department and the departmental honors adviser, a student may be admitted to the English honors program before the beginning of the senior year. A student may be recommended for admission to the English honors program by any member of the English department faculty, or the student may petition to enter the program. To be admitted to the program, a student must meet standards of eligibility.

Upon entering the program, the student will choose, as senior honors tutor, any member of the English department faculty of professorial rank who agrees to direct the student's honors project. The tutor will be officially assigned to the student by the department and the departmental honors adviser. While working on the honors project, the student will consult regularly with the tutor by enrolling in English 498 and English 499.

The honors project will consist of work during at least two successive academic quarters. Credit for this work will be noted by grades for English 498 and 499. The project will culminate in the writing of an honors thesis or project report. This thesis or report will be evaluated by a committee comprised of the student's honors tutor, the departmental honors adviser, and one other English department faculty member of professorial rank.

Certificate Program in Professional Writing

A certificate in professional writing is available to any student who successfully completes twenty hours of approved writing courses. Please contact the departmental office for further information.

Certificate Program in TESOL

A certificate program in Teaching English to Speakers of Other Languages is offered by the Department of English in cooperation with the College of Education and Human Services. Included are courses in English and comparative language studies, TESOL methods, and a practicum. Interested students should contact the department chair.
## Degree Requirements—English
### Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements</td>
<td>47</td>
</tr>
<tr>
<td>English Major Requirements</td>
<td>52</td>
</tr>
<tr>
<td>ENG 255, 256</td>
<td>8</td>
</tr>
<tr>
<td>ENG 351 or 352, 353 or 354, 355 or 356, or 357, and one other course from 351-357 group</td>
<td>16</td>
</tr>
<tr>
<td>At least three of the following courses, each from a different category: ENG 410, 420, 430, 440, 450, 460, 470</td>
<td>12</td>
</tr>
<tr>
<td>Three additional 300- or 400-level courses</td>
<td>12</td>
</tr>
<tr>
<td>One course in linguistics (ENG 480 or 497)</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language or Research Methods Requirement</td>
<td>20-24</td>
</tr>
<tr>
<td>Electives</td>
<td>69-73</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

### Degree Requirements—English with Certification
##### Bachelor of Arts Degree

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Major Requirements</td>
<td>52</td>
</tr>
<tr>
<td>ENG 203 or CPL 201, 202, 203 (General Education, Area Three B—one course)</td>
<td>4</td>
</tr>
<tr>
<td>ENG 255</td>
<td>4</td>
</tr>
<tr>
<td>ENG 341</td>
<td>4</td>
</tr>
<tr>
<td>ENG 480 or 497</td>
<td>4</td>
</tr>
<tr>
<td>ENG 351 or 352, 353 or 354, 355, 356, or 357, and one other course from 351-357</td>
<td>16</td>
</tr>
<tr>
<td>At least three of the following (each from a different category): ENG 410, 420, 430, 440, 450, 460, 470</td>
<td>12</td>
</tr>
<tr>
<td>An elective in literature at the 300- or 400-level</td>
<td>4</td>
</tr>
<tr>
<td>An elective in composition or linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Professional Education Requirements</td>
<td>45-47</td>
</tr>
<tr>
<td>ED 211, 212, 213, 214, 215, 216, 217</td>
<td>13</td>
</tr>
<tr>
<td>ED 326, 327, 328, 329, 404, 432, 464</td>
<td>13</td>
</tr>
<tr>
<td>ED 332**</td>
<td>3</td>
</tr>
<tr>
<td>ED 440, 429</td>
<td>16-16</td>
</tr>
<tr>
<td>Related Requirements</td>
<td>14</td>
</tr>
<tr>
<td>PSY 111 (General Education, Area Three A—one course)</td>
<td>4</td>
</tr>
<tr>
<td>MTH 304*</td>
<td>4</td>
</tr>
<tr>
<td>COM 101, 102 (General Education, Area Three B—two courses)</td>
<td>6</td>
</tr>
<tr>
<td>Additional General Education Requirements</td>
<td>33</td>
</tr>
<tr>
<td>ENG 111,* 112</td>
<td>8</td>
</tr>
<tr>
<td>Area Two</td>
<td>12</td>
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<tr>
<td>Area Three A (two courses)</td>
<td>8</td>
</tr>
<tr>
<td>Area Three A or B</td>
<td>5</td>
</tr>
</tbody>
</table>

### Environmental Studies

**Director** Timothy S. Wood

Environmental studies offers an interdisciplinary program that allows students in the Colleges of Liberal Arts and Science and Engineering to pursue a dual major program. The primary major (e.g. economics, political science) trains the student in the requisite skills for that area; the environmental studies component encourages an interdisciplinary perspective with respect to the environment. This shared experience is intended to prepare better-informed persons in a variety of vocations who will be equipped to make considered value judgments and to use the legal, social, and political channels available to them in order to function as environmentally responsible citizens.

The student’s program is jointly approved by a departmental adviser and by the academic coordinator for environmental studies. Students are required to take a core of courses which emphasizes the physical, social, and humanistic aspects of environmental problems and are given the opportunity to pursue their individual interests through an internship program.

### Dual Major Requirements—Environmental Studies

The student must fulfill both the requirements of a departmental major and the requirements for environmental studies. The total credit-hour requirement for the dual major does not exceed the normal requirement of a conventional single-major degree program.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Studies Requirements</td>
<td>40</td>
</tr>
<tr>
<td>Core Curriculum</td>
<td></td>
</tr>
<tr>
<td>Six courses selected from the 100- and 200-level offerings of environmental studies</td>
<td>18</td>
</tr>
<tr>
<td>Related Elective Courses</td>
<td></td>
</tr>
<tr>
<td>Including ENV 411, 413, 499</td>
<td>22</td>
</tr>
</tbody>
</table>
Sample Dual Major Curriculum

Sociology and Environmental Studies 183

- General Education requirements 48
- Departmental unit 40
- Related courses (sociology) 24
- Foreign language or research methods requirement 21
- Environmental studies core 18
- Related environmental courses 22
- Electives 10

Students are encouraged to take the lower-level environmental studies courses during their freshman and sophomore years. ENV 411, 413, and 499 should be reserved for the junior or senior years.

Geography

Professors Oshiro, Ray (chair)
Adjunct Professor Dusko
Adjunct Associate Professor Crouch
Assistant Professors Clemens, Doherty, Mazey, Wetter (WOBC)

Geography may be selected as an academic major or as a secondary teaching major in social science, as part of an earth science program, or as part of an elementary teaching major. Geography courses may satisfy both General Education requirements and advanced course electives in many programs. Students majoring in geography may qualify for certification at the secondary level by meeting the minimum requirements in professional education courses essential to certification by the state of Ohio. Students interested in this option should consult a records analyst in the College of Education and Human Services for information concerning minimum requirements.

The geography program provides options which allow students to select a curriculum best suited to their particular interests or future plans. Depending on their interests or plans, geography majors must select a program of courses leading to a Bachelor of Arts degree or Bachelor of Science degree.

The Bachelor of Arts degree in geography fosters an understanding of the processes of formation and the characteristics of a landscape. A broad spectrum of courses in geography and related fields helps the student delineate, by data collection and analysis, the processes which create a landscape. Students select an area of study from among physical geography, resource management, urban-economic geography, or urban planning. Study of a foreign language is part of this degree program.

The objective of the program of courses leading to a Bachelor of Science degree in geography is to develop competence in the area of technical skills and logic in accordance with the change in emphasis to a more spatial-behavioral orientation. Competence in technical skills and logic is critical as more geography majors seek employment in government and business. However, an understanding of the traditional geographic perspective is an important part of the education of a geographer. To achieve these goals, courses in physical, economic, and social geography; cartography, photogrammetry, and remote sensing; and urban planning are emphasized in the program. These courses are complemented by courses in mathematics, philosophy, and computer science.

Because sequential requirements and prerequisites exist in both the professional and academic components of each program from which courses are selected, the student is strongly urged to consult an adviser before registering.

The Department of Geography seeks to provide students with an awareness and understanding of the spatial organization and distribution of phenomena in the physical and human world. Geography has a broad interdisciplinary base ranging from natural to behavioral sciences. Such topics as climatology, landform analysis, settlement theory, spatial interaction, and urban morphology indicate the breadth of contemporary geography.

The geographer must take account of historical and cultural processes, including people's diverse attitudes toward the earth and how these have changed through time. In addition, the geographer must consider economic and social processes which influence such geographical conditions as industrial location, population distribution, urban spatial structure, settlement patterns, and the use of resources. Also, the geographer must be able to employ the data of natural science, or be intimately concerned with the data of social science and the intelligence of philosophy.

The undergraduate major in geography thus includes the study of cultural, economic, physical, and regional geography, as well as cartography, quantitative methods, and field work. Backgrounds in the natural and social sciences, humanities, statistical methods, and computer programming are useful to the geography major.

The department participates in the university's dual major program. For further details, see the department chair.

Geography majors may participate in the department's internship program. The internship is designed to provide practical experience for majors in geography as they pursue the baccalaureate. Such experience is considered critical for many students, especially those intending to seek employment immediately following completion of the B.A. or B.S. degree.
Geography Honors Program

The Department of Geography encourages outstanding academic work through the honors program established for superior students who wish to work on a geographic problem of their own definition. Applicants must be majors in geography, have senior standing with thirty-six hours of courses in geography to their credit, and meet certain minimum grade point averages. Candidates are required to complete an honors project under the direction of a member of the geography faculty. Successful completion of the project, including written and oral project reports, carries four academic credits and entitles the student to graduate with formal recognition of honors in geography. Geography honors students are encouraged to participate in the University Honors Program. Interested students should contact the departmental coordinator of the program.

Cooperative Education Program

Cooperative education experience is also available to qualified geography majors beginning in their sophomore year in both the public and private sectors. Cooperative job opportunities exist in the areas of cartography, community development, meteorology, remote sensing, and urban planning. Cooperative education offers students a means of partially financing their education while gaining career-oriented experiences.

Students interested in the internship or cooperative education opportunities should contact the departmental coordinator of the programs.

Certificate Programs

A certificate program in Cartography, Photogrammetry, and Remote Sensing is offered by the Department of Geography, providing extended training for those desiring to complement a major field of study with such skills. Included is a group of five courses allowing participants to become aware of the latest developments in data collection and analysis techniques, aerial and space cameras and sensors, photographic materials and reproductive processes, and mapping procedures, including computer mapping. Upon completion of these courses, each participant must present a portfolio of materials for faculty review and complete an oral review of their work with the faculty.

A certificate program in Urban Planning is offered by the Department of Geography to provide training in the planning process, especially for those desiring to complement a major field of study with such skills. Through six courses, the student will study the built environment and the various techniques used to describe, evaluate, and guide spatial and physical change. Students will acquire skills in defining needs and goals, in assessing development patterns and policies, and in evaluating methods for implementing planned changes. The program requires the completion of six courses which provide participants with information on the planning function and the development of research and analytical abilities for those preparing for work in, or who are currently engaged in, city, urban, regional, environmental, or resource planning. Upon completion of these courses, each participant will present a portfolio of materials for faculty review and, in addition, present an oral defense of his/her research project before a faculty review committee.

Students interested in the certificate program should contact the department chair.

Degree Requirements—Geography

Bachelor of Arts Degree

General Education Requirements 47
Foreign Language Requirement 20
Departmental Core Requirements 26
GEO 101, 102, 103 12
GEO 285 5
GEO 365 5
One course in regional geography 4
Departmental Major Requirements 32-33
Related Course Requirements 24
Electives 41-42

Should be selected in consultation with the departmental adviser to complement and support the area of concentration

Total 192

Geography Major Curricula

Physical Geography

Physical Geography Major Requirements 33
GEO 230, 271 8
GEO 322, 331 8
GEO 432, 445 9
Two appropriate geography courses numbered 300 or above 8
Related Course Requirements 24

Approved courses numbered 200 and above (not to exceed four courses in one department) in computer science, engineering, geology, mathematics, and physics
### Resource Management

**Resource Management Major Requirements** 32
- GEO 230, 253, 261, 271 16
- GEO 322 4
- GEO 458 4
- Two appropriate geography courses numbered 300 or above 8

**Related Course Requirements** 24
Approved courses numbered 200 and above (not to exceed four courses in one department) in biology, business, computer science, economics, engineering, environmental studies, geology, history, marketing, political science, religion, and urban studies.

### Urban-Economic Geography

**Urban-Economic Geography Major Requirements** 32
- GEO 242, 253 8
- GEO 343, 354 8
- GEO 458, 466, 478 12
- One appropriate geography course numbered 300 or above 4

**Related Course Requirements** 24
Approved courses numbered 200 and above (not to exceed four courses in one department) in computer science, economics, environmental studies, history, marketing, mathematics, political science, psychology, sociology, and urban studies.

### Urban Planning

**Urban Planning Major Requirements** 32
- GEO 242, 253, 275 12
- GEO 343, 376 8
- GEO 477 4
- Two appropriate geography courses numbered 300 or above 8

**Related Requirements** 24
Approved courses numbered 200 and above (not to exceed four courses in one department) in anthropology, art, biology, chemistry, computer science, economics, education, engineering, environmental studies, geology, history, marketing, mathematics, political science, psychology, social work, sociology, and urban studies.

### Degree Requirements—Geography

**Bachelor of Science Degree**

**General Education Requirements** 47

**Departmental Core Requirements** 26
- GEO 101, 102, 103 12
- GEO 285 5
- GEO 365 5
- One course in regional geography 4

**Physical Component**
Three of the following (twelve hours):
- GEO 230 4
- GEO 322 4
- GEO 331 4
- GEO 432 4

**Economic-Social Component**
Two of the following (eight hours):
- GEO 253 4
- GEO 458 4
- GEO 271 4

**Skills Component**
Two of the following (eight or nine hours):
- GEO 261 4
- GEO 362 4
- GEO 445 5
- GEO 446 4
- GEO 463 4

**Planning Component**
Two of the following (eight hours):
- GEO 275 4
- GEO 376 4
- GEO 477 4

**Related Course Requirements** 30

**Mathematics**
- STT 164 3
- STT 165 1
- STT 265 3
- STT 266 1
- MTH 224 3
- MTH 226 3

**Philosophy**
Two of the following (eight hours):
- PHL 115 4
- PHL 471 4
- PHL 472 4

**Computer Science**
Two of the following (seven or eight hours):
- CS 141 4
- CS 142 4
- CS 300 4
- CS 210 3

**Electives** 52-53
Should be selected in consultation with the departmental adviser to complement and support the area of concentration.

**Total** 192
History

Professors  Becker, Berry, Dorn, Gordon, Spiegel
Associate Professors  Merriam, Sealander, Spetter (chair), Yuan
Assistant Professors  Arbagli, Swann, Wachtel, Wood (WOBC)

The undergraduate major in history enables a student to gain a broad liberal arts education. In meeting the specific requirements of the major, students are encouraged to further their knowledge of the principal developments and problems of history and to enrich their understanding of historical evolution through research and writing. Through complementary elective courses in other departments, which add depth and variety, students enlarge their historical perspective. Through exposure to a broad spectrum of human experience in the past and present, students should come to an understanding of the self and of their relationship to other human beings and to the structure of society. The history major can thus be used generally by the student who wishes to be a useful member of the community, and specifically by the student who seeks a career in such fields as teaching, journalism, library and archival work, government, politics, law, and business. The departmental program also provides a sound basis for students planning to pursue study at the graduate level.

The student who declares history as a major is assigned an academic adviser who will assist with academic routines, the selection of individual courses, and the development of undergraduate and postgraduate goals. Students interested in careers in law, public service, journalism, or business should consult with the adviser about departmental programs particularly geared to these fields.

History Honors Program

The honors program enables qualified students to carry out independent research under the guidance of a faculty sponsor. Departmental honors at graduation are awarded on the basis of the student's completion of the following: at least one interdisciplinary honors seminar, History 400 (with a grade of A or B); a 3.5 average in history and a 3.0 average in overall course work; and a Bachelor of Arts degree in history. In exceptional cases, certain requirements may be waived by a vote of the departmental curriculum committee. Interested students should consult with the departmental adviser.

Placement Examinations

Students who feel that their background and previous experience equal the introductory courses either in American or European history or both may take the appropriate qualifying examination. A sufficient grade in the examination will lead to eight or sixteen history credit hours. Students should contact the department for details.

Cooperative Education Program

A cooperative education program is available to qualified history majors in both the private and public sectors. Cooperative education job opportunities may be arranged in government, business, industry, and a variety of private service organizations. Cooperative education offers students a means of partially financing their education while gaining a career-related experience. A limited number of elective course credits will be granted to students who satisfactorily complete their programs. Contact the department chair or undergraduate adviser for further information.

Degree Requirements—History

Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 52

Professional courses: HST 300, 498 8
US history (upper division) 8-12
European history (upper division) 8-12
Other history courses (upper division) 8-12

Twelve hours in one of the three areas and eight hours in each of the remaining areas
History electives 16

Related Requirements 24

Twelve hours in one of these fields: anthropology, art, classics, economics, literature, geography, music, philosophy, political science, religion, or sociology

Foreign Language or Research Methods Requirement 20-24

Electives 45-49

Total 192

Modern Languages

Professors  Matual, Racevskis
Associate Professors  Garrison, Horn, Hye, Larkins, Park, Whissen (chair)
Assistant Professor  Cannon

Adjunct Assistant Professor  Pittman (Piqua)

The contributions of foreign language study to international understanding and world peace and the value of language literacy within the framework of liberal education have long been recognized.
The foreign language program seeks to combine oral and written proficiency with knowledge of the culture and literary heritage of societies other than our own. The department provides excellent preparation for entrance into many crucial and challenging fields, including the diplomatic corps, foreign trade, government, business, industry, and teaching.

Students should be aware that knowledge of a foreign language alone is often insufficient for many careers. Therefore, the goal of the language major should be to combine knowledge of a language with another discipline or skill. While a second foreign language is not required, the department strongly recommends it.

The Department of Modern Languages offers majors leading to the Bachelor of Arts degree in French, German, Spanish, and modern languages. The student who seeks teacher certification in these languages may work toward the Bachelor of Science in Education degree, available through the College of Education and Human Services, or may earn a Bachelor of Arts degree with certification, fulfilling both the requirements of the language major and the professional education requirements of the College of Education and Human Services.

In addition to major and minor programs in French, German, and Spanish, the department offers basic courses in Danish, Italian, Polish, Portuguese, Russian, comparative literature, foreign cultures, literature in translation, and linguistics.

Modern Languages Honors Program
Outstanding language majors are encouraged to participate in the departmental honors program. For details, please consult with the chair.

Summer Program in Spain
The department sponsors a one-month summer program in Spain. Students spend three weeks in Madrid taking classes for a maximum of four credits, then one week on a guided tour to a particular region of the country. The courses vary from year to year, but usually there are offerings in language, literature, and culture. Each year a different region is visited—one year Andalucia, the next year Galicia, the next year Cataluna, etc. The price of the program can be arranged to include transportation, room, board, tuition, and the guided regional tour, or whatever part of the package the student chooses. A professor from the department serves each year as codirector of the program. For details, contact the department chair.

Placement and Proficiency
Students are responsible for placing themselves on the language level at which they can perform satisfactorily.

For students who have had no foreign language or one year of study in high school, the 101 course level is recommended. Students who have had two or three years of foreign language in high school should take the 201 level. For students with four years of foreign language study, the 321 and/or 341 courses are suggested.

Students are not obligated to follow this placement scale. However, if they are uncertain about the appropriate placement level, they may make arrangements with the modern language department to take a test to determine their level of capability.

Proficiency credit may be earned in two areas: 300-level conversation courses (four credit hours), and 300-level composition courses (eight credit hours).

Degree Requirements—French
Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 50
FR 201, 202, 301, 302 16
FR 321, 322, 341, 342 16
FR 361 2
French electives (300- and 400-level courses) 16

Related Requirements 24
CPL 201, 202, 203, 210 8
(Students should take at least two courses.)
ML 111, 112, 113, 114, 115 8
(Students should choose the culture course related to their field plus at least one other culture course.)
ML 211, 212, 213, 214, 215 8
(Students should choose at least two literature courses in translation outside their own field.)

Electives 71

Total 192

Degree Requirements—German
Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 48
GER 201, 202, 301, 302 16
GER 321, 322, 341, 342 16
German electives (300- and 400-level courses) 16
### Liberal Arts/Modern Languages

#### Related Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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<td>CPL 201, 202, 203, 210</td>
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</tr>
<tr>
<td>(Students should take at least two courses.)</td>
<td></td>
</tr>
<tr>
<td>ML 111, 112, 113, 114, 115</td>
<td>8</td>
</tr>
<tr>
<td>(Students should choose the culture course related to their field plus at least one other culture course.)</td>
<td></td>
</tr>
<tr>
<td>ML 211, 212, 213, 214, 215</td>
<td>8</td>
</tr>
<tr>
<td>(Students should choose at least two literature courses in translation outside their own field.)</td>
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</tr>
</tbody>
</table>

#### Electives

| Electives | 73 |

#### Total

| Total | 192 |

### Degree Requirements—Spanish

#### Bachelor of Arts Degree

#### General Education Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Departmental Requirements</td>
<td>50</td>
</tr>
<tr>
<td>SPN 201, 202, 301, 302</td>
<td>16</td>
</tr>
<tr>
<td>SPN 321, 322, 341, 342</td>
<td>16</td>
</tr>
<tr>
<td>SPN 331, 332, 361</td>
<td>10</td>
</tr>
<tr>
<td>Spanish electives (400-level courses)</td>
<td>8</td>
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#### Related Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CPL 201, 202, 203, 210</td>
<td>18</td>
</tr>
<tr>
<td>(Students should take at least two courses.)</td>
<td></td>
</tr>
<tr>
<td>ML 111, 112, 113, 114, 115</td>
<td>8</td>
</tr>
<tr>
<td>(Students should choose the culture course related to their field plus at least one other culture course.)</td>
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</tr>
<tr>
<td>ML 211, 212, 213, 214, 215</td>
<td>8</td>
</tr>
<tr>
<td>(Students should choose at least two literature courses in translation outside their own field.)</td>
<td></td>
</tr>
</tbody>
</table>

#### Electives

| Electives | 71 |

#### Total

| Total | 192 |

### Modern Language Minors

#### French, German, Spanish

A minor in a foreign language greatly enhances a student’s career prospects.

Minors are offered in French, German, and Spanish and require a minimum of twenty-four credit hours selected from courses at the 200 level or above (excluding LI 471, FR 361, and SPN 361).

A minor in Spanish, for example, might consist of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SPN 201, 202</td>
<td>8</td>
</tr>
<tr>
<td>SPN 301</td>
<td>4</td>
</tr>
<tr>
<td>SPN 321</td>
<td>4</td>
</tr>
<tr>
<td>SPN 341, 342</td>
<td>8</td>
</tr>
</tbody>
</table>

#### Total

| Total | 24 |

### Motion Pictures

See Theatre Arts

### Music

#### Professors

Steinohrt, Wurtz

#### Associate Professors

Atsalis, Bland, Foster, Olds, Poff, Young

#### Assistant Professors

Johnson (chair), Lane, Larkowski, Laws, Magill

#### Music Associates

Bell, Bowsher, Gilley, Hageman, Haines, Harris, Katz, Kemp, Mallonee, McCutcheon, Pitzer, Rasor, Roberts, Rodgers, Scutt, Smith, Taylor, Varella, Walker, Werner
The Department of Music offers a four-year curriculum designed for the serious student who wishes to pursue a career in music. As a member of the National Association of Schools of Music, the department has designed the requirements for entrance and graduation in accordance with the published regulations of that association. The Bachelor of Music degree is offered with majors in applied music, music education, music theory, music history and literature, and music composition; the Bachelor of Arts degree is offered with a major in music. A Master of Music degree with a major in music education is also offered. Because of the highly individualized nature of the various programs, the student is required to consult with an adviser in planning a major program.

All students in the university, as well as members of the community, are eligible to participate in the performing organizations. Some groups require individual auditions; prospective members should consult the various conductors to arrange auditions. Membership in the University Band, Orchestra, Chorus, or other authorized performing group is required of all music majors throughout their period of study, as described in the curricular outlines. The following instrumental groups are available: Orchestra, Symphony Band, Concert Band, Brass Choir, and Jazz Ensemble. Choral groups include the University Chorus and Chamber Singers. Students majoring in other academic areas and members of the community may also elect music courses especially designed for the nonmusic major.

In addition to fulfilling university admissions procedures, the prospective music major must also complete a departmental application for an audition, perform a satisfactory audition in a major performance area, and meet with an assigned adviser from the music faculty for counseling and registration. Placement in applied music will be determined at the end of the first quarter of degree credit study. Transfer students must submit a transcript of all previous work in addition to completing the above steps. A minimum of one transfer student working toward a degree.

A progressive course of study based on four levels of technical proficiency, musicianship, and repertoire has been developed in all areas of applied music. Solo recital performances are also required of music majors. For information regarding applied music requirements, the student should refer to the Applied Music Policy Statement, which includes details of formal recital requirements.

All music majors must pass a keyboard proficiency examination, details of which are set out in the document Keyboard Proficiency Requirements. Students should consult regularly with their applied music instructors and advisers to ensure proper progress through the various requirements.

All music degree programs require a minimum of 192 credit hours for graduation. A detailed, four-year curriculum outline for each major program is available in the Department of Music office.

Degree Requirements—Applied Music

Bachelor of Music Degree

The department offers majors in the following areas of performance: piano, voice, organ, violin, viola, violoncello, string bass, flute, oboe, clarinet, bassoon, saxophone, trumpet, French horn, trombone, euphonium or baritone horn, tuba, percussion, classical guitar, and harp. With departmental permission, students may major in fields other than those listed. Students must study continuously in their chosen disciplines until all graduation requirements are met, including satisfactory public performance of a solo half recital during the junior year and solo full recital during the senior year.

The department also offers an emphasis in piano pedagogy. During the senior year, each student in this curriculum will perform in student recitals two or three times for a total of twenty-five to thirty minutes. With the approval of the studio teacher and the applied music board, a student may present a half recital or a full recital in lieu of this requirement.

To be eligible for the Bachelor of Music degree, the applied major must have a minimum cumulative grade point average of 3.0 in the major performing medium and a 2.0 in all other required music courses.

General Education Requirements 47

Departmental Requirements 30

MUS 101,* 102,* 103, 201, 202, 203 12
MUS 151, 152, 153, 251, 252, 253 6
MUS 121,* 122,* 311; 312, 313 12

Major Requirements 28

MUS 301, 302, 303 (Voice majors may substitute 401, 402, 403) 9
### Performance Area Requirements

**Voice**
- MUS 441, 442, 455, 456, 457 8
- MUS 420 9
- MUS 261, 262, 263 6
- MUS 110 48
- MUS 105 3
- Choral Ensemble 9
- MUS 205 or appropriate MUS 481 3
- MUS 155, 156, 157 3
- MUS 100 or 255, 256, 257 3

**Piano**
- MUS 401, 402, 403 9
- MUS 447, 448, 451, 452, 453 15
- MUS 100 48
- MUS 105 3
- MUS 205 3
- MUS 105 or 205 3
- Elective 3

**Organ**
- MUS 401, 402, 403, 441, 442 11
- MUS 160 48
- MUS 110 6
- MUS 105 3
- Choral Ensemble 6
- MUS 205 3
- Religion elective* 6
- Electives 83

**Strings (violin, viola, violoncello, or double bass)**
- MUS 401, 402, 403, 421, 422 13
- MUS 180, 190, 200 or 210 48
- Secondary string study (one quarter of private lessons in each of the other string instruments excluding the major) 3
- MUS 105 3
- MUS 205 3
- MUS 135 12
- MUS 155, 156, 157 3
- MUS 100 or 255, 256, 257 3

**Woodwinds**
- MUS 401, 402, 403, 421, 422, 441, 442 15
- MUS 120, 130, 220, 230 or 240 48
- MUS 105 3
- MUS 115 9
- MUS 135 3
- MUS 205 3
- MUS 155, 156, 157 3
- MUS 100 or 255, 256, 257 3
- Secondary woodwind study (one quarter of private lessons in each of the other woodwind instruments excluding the major) 4

**Brass**
- MUS 401, 402, 403, 421, 422, 441, 442 15
- MUS 140, 150, 170, 250 or 260 48
- MUS 105 3
- MUS 115 12
- MUS 135 3
- MUS 205 3
- MUS 235 3
- MUS 125, 135, 205 or 235 2
- Secondary brass study: one or two instruments 2
- MUS 155, 156, 157 3
- MUS 100 or 255, 256, 257 3

**Percussion**
- MUS 401, 402, 403, 421, 422, 441, 442 15
- MUS 270 48
- MUS 105 3
- MUS 115 12
- MUS 125 3
- MUS 135 2
- MUS 205 3
- MUS 155, 156, 157 3
- MUS 100, or 255, 256, 257 3
- MUS 125, 205 or 235 2

**Classical Guitar**
- MUS 401, 402, 403, 421, 422 13
- MUS 290 48
- MUS 105 3
- Choral Ensemble 3
- MUS 205 12
- MUS 215, 216, 217 3
- MUS 155, 156, 157 3
- MUS 100 or 255, 256, 257 3

**Emphasis in Piano Pedagogy**
- MUS 401, 402, 403 9
- MUS 447, 448, 449, 451, 452, 453 18
- MUS 100 24
- MUS 105 3
- MUS 205 3
- MUS 105 or 205 3
- MUS 156, 157 2
- MUS 314, 328 7
- MUS 110, 160, or 280 3
- PSY 111, *112* 3
- Electives 10

*These courses fulfill General Education requirements.

### Degree Requirements

**Bachelor of Music Degree**

Students who major in music education may elect either an instrumental or a vocal-general music curriculum. Upon completion of the requirements of the music education program, which include the requirements of the Ohio Board of Education, the student receives the Ohio Special Certificate for teaching music. To be eligible for the Bachelor of Music degree, the music education major must have a minimum cumulative grade point average of 3.0 in required music education courses.
and a 2.0 grade point average in all other required music courses. An overall minimum cumulative grade point average of 2.25 is required.

Three hundred hours of observation/participation experiences are required prior to student teaching.

Students majoring in music education must fulfill a mathematics requirement by attaining an ACT score of nineteen or completing either MTH 304 or 127.

During the senior year each student will perform in student recitals two or three times for a total of twenty-five to thirty minutes. With the approval of the studio teacher and the applied music board, a student may present a half recital or a full recital in lieu of this requirement.

General Education Requirements 47

Departmental Requirements 30

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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<tr>
<td>MUS 101,*</td>
<td>Music Theory I</td>
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<td>MUS 151, 152, 153</td>
<td>Music Theory II, III</td>
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<tr>
<td>MUS 121,*</td>
<td>Music Theory IV</td>
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Major Requirements 29-32

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<th>Title</th>
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<td>MUS 155, 156, 157</td>
<td>Music Theory V, VI, VII</td>
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<td>(those in piano and organ concentrations do not take MUS 155)</td>
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<td>Humanities or HST 121, 122*</td>
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<td>ED 211, 212, 213, 214, 215,* 216, 217,*</td>
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<td>221, 222, 223</td>
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<td>ED 429</td>
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One of the following programs 77-93

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<td>MUS 105</td>
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<tr>
<td>MUS 115 or 135</td>
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<td>MUS 145, 146, 147</td>
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<td>MUS 205</td>
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<td>MUS 215, 216, 217, 224, 225, 226; 227, 228, 229</td>
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<td>MUS 223, 323, 324, 329</td>
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<td>MUS 335, 338</td>
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<td>MUS 421, 422</td>
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<td>Music electives</td>
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</table>

Choral laboratory ensemble

Voice Concentration with Piano Secondary or Piano or Organ Concentration with Voice Secondary 77-80

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Piano Concentration</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary (if piano is concentration)</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Secondary (if voice is concentration)</td>
<td></td>
<td>8</td>
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<tr>
<td>MUS 105</td>
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<td>3</td>
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<tr>
<td>MUS 105 or 195</td>
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<td>8</td>
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<td>MUS 215, 224, 226, 227</td>
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<td>4</td>
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<td>MUS 261, 262, 263</td>
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<td>6</td>
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<td>MUS 326, 329, 322</td>
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<td>10</td>
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<td>MUS 335, 337</td>
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<td>7</td>
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<td>MUS 421, 422</td>
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<td>4</td>
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<tr>
<td>Music electives</td>
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Degree Requirements—Music Theory

Bachelor of Music Degree

Students may pursue a Bachelor of Music degree with a major in music theory. This is not a terminal degree and students pursuing this curriculum should expect to continue at the graduate level. Therefore, all students considering this program should consult with the coordinator of music theory before entering the program.

Admission to this program requires a cumulative grade point average of 3.0 in MUS 101, 102, 103 and MUS 151, 152, 153; students intending to pursue a degree in music theory will be placed in the Music: Unspecified category until MUS 103 and 153 have been completed.

In order to meet graduation requirements with a major in music theory, the student must complete performance level 3A in the principal performance area and pass all keyboard proficiency requirements. A 3.0 cumulative grade point average must be maintained in all required music theory courses and a 2.0 in all other required music courses. Senior students will be required to complete a senior project. This requirement may be met through a scholarly lecture in the field of music theory and may include the presentation of original compositions and performance. Exception to any requirement must be approved by the department chair and the appropriate departmental faculty committee.
General Education Requirements

Departmental Requirements
MUS 101, *102, *103, 201, 202, 203 12
MUS 151, 152, 153, 251, 252, 253 6
MUS 121, *122, *311, 312, 313 12

Major Requirements
MUS 155, 156, 157 (those in piano or organ concentration do not take MUS 155) 2-3
MUS 301, 302, 303: 314 12
MUS 335, 337 or 338, 371, 372, 381, 382 19
MUS 401, 402, 403, 421, 422, 423 15
MUS 424, 425; 481, 482, 483 12
Ensemble (at least one hour per quarter) 12
French or German (three courses in one language) 12
Electives (those in vocal concentration must take MUS 261, 262, 263) 6
One of the following performance concentrations 23-31

Keyboard Concentration
Concentration 23
Secondary (at least one hour each in voice, woodwinds, string, brass, percussion) 5

Nonkeyboard Concentration
Concentration 31
Keyboard 18
Class or private instruction selected from voice, woodwinds, strings, brass, percussion 4

*These courses fulfill General Education requirements.

Degree Requirements—Music History and Literature

Bachelor of Music Degree
Students may pursue a Bachelor of Music degree with a major in music history and literature. This is not a terminal degree, and students pursuing this curriculum should expect to continue at the graduate level. Therefore, all students considering this program should consult with the coordinator of music theory and literature before entering the program.

Admission to this program requires a cumulative grade point average of 3.0 in MUS 121 and 122: students intending to pursue the music history and literature major will be placed in the Music: Unspecified category until MUS 103, 153, and 122 have been completed.

In order to meet graduation requirements with a major in music history and literature, the student must complete level 3A in the principal performance area and pass all keyboard proficiency requirements. A 3.0 cumulative grade point average must be maintained in all required music history and literature courses and a 2.0 in all other required music courses. Senior students are required to complete a senior project, which will normally consist of an extensive research project.

Degree Requirements—Music Composition

Bachelor of Music Degree
Students may pursue a Bachelor of Music degree with a major in music composition. This is not a terminal degree, and students pursuing this curriculum should expect to continue study at the graduate level. Therefore, all students considering this program should consult with the coordinator of music theory and literature before entering the program.

Admission to this program requires a cumulative grade point average of 3.0 in MUS 101, 102, 103 and 151, 152, 153: students intending to pursue a degree in music composition will be placed in the Music: Unspecified category until MUS 103 and 153 have been completed.

In order to meet graduation requirements with a major in music composition, the student must complete level 3A in the principal performance area and pass all keyboard proficiency requirements. A 3.0 cumulative grade point average must be maintained in all required composition and theory courses and a 2.0 in all other required music courses. Senior students are required to present a thirty-minute recital of original compositions.
Degree Requirements—Music

Bachelor of Arts Degree

The Bachelor of Arts degree in music is designed for the student who wants to study music but does not necessarily plan a professional career in music. The student will get a much broader, more general education than the student seeking a Bachelor of Music degree. Required courses are kept to a minimum. Consequently, the student must work closely with an advisor in selecting course electives. For graduation, the student must reach level 3A in the principal performance area.

General Education 47

Departmental Requirements 30

- MUS 101, 102, 103; 201, 202, 203 12
- MUS 151, 152, 153; 251, 252, 253 6
- MUS 121, 122, 311, 312, 313 12

Major Requirements 87-88

- MUS 155, 156, 157 (those in keyboard concentrations do not take 155) 2-3
- MUS 301, 302, 303; 335, 337 or 338 16
- MUS 371, 372, 373; 381, 382, 383 18
- MUS 401, 402, 403; 421, 422, 423 15
- MUS 471, 472, 473; 481 12
- Ensemble (at least one hour per quarter) 12
- Electives (those in vocal concentration must take MUS 261, 262, 263) 12

One of the following performance concentrations 29-31

**Keyboard Concentration** 29
- Concentration 18
- Secondary (selected from voice, woodwinds, strings, brass, percussion) 5
- Electives 6

**Nonkeyboard Concentration** 31
- Concentration 18
- Keyboard 9
- Class or private instruction selected from voice, woodwinds, strings, brass, percussion 4

*These courses fulfill General Education requirements

Music Honors Program

The Department of Music encourages students who have demonstrated superior academic ability to participate in the music honors program. Entrance to this program requires that the student be a junior or senior with a cumulative 3.0 grade point average and a 3.5 GPA in music. For additional information, contact the department chair.

Philosophy

Associate Professors  Hough (chair), Power
Assistant Professors:  Beelick, Taylor

The philosophy major is designed to encourage clear and logical thinking about problems which philosophers attempt to solve, to develop the student’s ability for critical evaluation through analysis and appreciation of such attempts, and to increase the student’s cultural experience through acquaintance with the more important philosophic writings.

The forty-four hour requirement in the major affords a considerable measure of flexibility; it enables students to utilize numerous options in other disciplines to prepare for different professional objectives, while also developing a relatively broad understanding of our society and culture. It is to the major’s advantage to pursue courses in other fields since philosophy, by its very nature, is interrelated with all disciplines. Many academic departments include within their curricula courses in the philosophy of their disciplines. Furthermore, philosophical questions can arise during one’s investigation of any specific field.

Because of differences among student interests and the ready availability of electives, each major will follow an individualized program in consultation with an adviser. Such a program permits concentration in cognate fields and encourages exploration and self-discovery.

Since the required courses in philosophy are designed to emphasize basic issues confronting our civilization, the philosophy major is excellent preparation for those who seek a well-rounded
liberal education, for those who pursue further training in professional disciplines such as law, medicine, and theology, and for those who plan advanced study in philosophy.

Degree Requirements—Philosophy

Bachelor of Arts Degree

General Education Requirements 47
Departmental Requirements 44
Electives and Related Courses 77-81
Foreign Language or Research Methods Requirement 20-24
Total 192

Political Science and Urban Affairs

Professors Smith, Thobaben
Associate Professors Adams, Funderburk, Hutzel, Jacob, Kotecha, Moore, Shaw, Walker (chair)
Assistant Professors Sirkin, Thomas

Politics and government are among the oldest and most universal of human activities and institutions. The quest for political institutions and processes capable of effective action, commanding popular support, and able to survive the test of time never ends. Political science is the study of how people have responded and continue to respond to the social need for workable instruments and processes of governance. More specifically, political science is the systematic study of political beliefs, actions as they occur in and outside of formal institutions, and the structures of law, public policy formation, and conflict resolution found in some form in all societies. Political science has a long tradition of philosophical concern for normative questions of social justice, individual political rights, limits on governmental power, obedience to law, and human liberty. More recently, political scientists have begun to apply more rigorous modes of analysis and techniques of empirical investigation in their study of politics and government. Thus, a major in political science offers knowledge of human behavior in a primary area of social life. Further, it trains students in the intellectual skills necessary not only for consideration of issues faced by citizens in the modern state but which also provide excellent preparation for more specialized career education in such fields as law, education, public service, journalism, certain business fields, and communications.

The Department of Political Science offers courses on government and politics in the following areas: the United States, China and Japan, Eastern and Western Europe, Africa, the Middle East, and the Soviet Union. The department also provides opportunity for study in international relations, law, and organization; political thought; and methods of empirical political research and analysis.

Political science majors must complete a minimum of forty-eight credit hours in political science courses, twenty-four of which must be taken at Wright State University. Majors must take any three of the following courses: PLS 112, 113, 122, 123. Students are encouraged, however, to take all four since they provide basic preparation for all US and non-US advanced courses. Majors are further encouraged to take course work in political thought as foundation in the philosophy of the discipline. Students, especially those who plan to study at the graduate level, should take course work in methods of empirical research and analysis.

Juniors and seniors who have an accumulative grade average of 3.0 are eligible for courses in independent study, but such courses (PLS 490, 491, 492) do not count toward the forty-eight hour minimum. Political science majors must demonstrate or develop proficiency in a foreign language or satisfy a department-approved research methods requirement. For political science majors, approved courses for the research methods option are PLS 210, 310; AIS 103, CS 200 or CS 141, 142, PHL 115, 472. Substitutions may be made only with the permission of the department chair. Students must satisfy in its entirety either the foreign language or the research methods option.

Political Science Honors Program

Senior political science majors who have a minimum grade point average of 3.0 in political science or who have support from one member of the department may qualify for participation in a departmental honors program. Interested students should consult with the department chair. Applications are reviewed individually by a departmental honors committee. If approved, a student may achieve honors in political science in either of two ways.

Option 1

Complete and defend a senior thesis on a topic approved in advance by the departmental honors committee. A maximum of twelve credit hours may be earned through thesis research. The number of hours for which the student registers depends on the nature of the research and is determined jointly by the student and the honors committee.
Option 2
Pass a comprehensive written examination embracing three subfields in which courses are offered in the department. Students who select this option should register for PLS 490, for four credit hours, during the winter or spring quarter of their senior year. High honors will be conferred on students who write theses or examinations of A quality, while honors will be granted to those whose theses or examinations are of B quality. Credit hours and a grade of C will be awarded to students whose work falls below B. Credit hours earned by participation in the departmental honors program may not be counted toward the forty-eight hour minimum required of majors.

Cooperative Education Program
Cooperative education is available to qualified political science majors in both the private and public sectors. Cooperative education job opportunities may be arranged in government, business, industry, and a variety of private service organizations. Cooperative education offers students a means of partially financing their education while gaining career-related experience. A limited number of elective course credits will be granted to students who satisfactorily complete their programs. Contact the department chair for further information.

Dual Major with Environmental Studies
Political science majors may take a simultaneous dual major in the growing career field of environmental studies by using available related and elective hours options. For details, consult the department chair or the academic coordinator of environmental studies.

Degree Requirements—Political Science
Bachelor of Arts Degree
General Education Requirements 47
Departmental Requirements 48
PLS 112, 113, 122, 123 (select any three) 12
Political science electives 36
Related Requirements 24
Economics, geography, history, philosophy, psychology, or sociology. To meet special needs, courses in such fields as accounting, business, religion, English, and communication may be counted as related hours.
Foreign Language or Research Methods Requirement 20-24
Electives 49-53
Total (minimum requirement) 192

Urban Studies
Director Charles Funderburk
Urban Studies is an undergraduate interdisciplinary program in the College of Liberal Arts administered by the Department of Political Science and Urban Affairs. The program offers majors leading either to the Bachelor of Arts or the Bachelor of Science degree. The objective of the program is to provide the student with an appreciation of the urban community as a complex system and to motivate the student to approach urban processes from an interdisciplinary perspective. More specifically, the program is designed to prepare some students for junior or entrance-level positions in both local government and selected community agencies. The program may also serve the needs of students preparing for graduate work.

Majors are required to complete a common core of courses and then are asked to select a specialization in one of five areas: urban planning (physical/social), public management, criminal justice, or fire administration. With the exception of fire administration, majors may complete all requirements at Wright State. Fire administration is available only to students who have completed an associate degree in fire science technology.

Individuals may apply for admission any time. Students will be notified of acceptance within thirty days. For additional information about the program and admission criteria and procedures, contact the Department of Political Science and Urban Affairs.

Degree Requirements—Urban Studies
Bachelor of Arts Degree
General Education Requirements 47
Departmental Requirements 72
URS 211, 411, 492 14
EC 330 3
GEO 242, 275 8
HST 216 4
PLS 225, 345 8
SOC 444 4
Urban studies electives 31
Related Requirements 4
ENG 330 or 343 4
Foreign Language or Research Methods Requirement 20-24
Electives 45
Total 192
Bachelor of Science Degree

General Education Requirements  47

Departmental Requirements  72

URS 211, 411, 492  14
EC 330  3
GEO 242, 275  8
HST 216  4
PLS 225, 345  8
SOC 444  4
Urban studies electives  31

Related Requirements  19-20

ENG 330 or 343  4
MTH 129, 224, 225, plus two statistics courses to be approved by the department  15-17

Electives  52-54

Total (minimum requirement)  192

Religion

Professors  Albanese, Friedland (Sanders Scholar), Piediscalzi

Associate Professors  Barr (chair), Neve, Reece, Stoesz

The Department of Religion is devoted to a comprehensive and nonsectarian inquiry into religion as one of the significant areas of human life and thought. This inquiry shares with other humanities disciplines (history, English, philosophy, etc.) the goal of understanding ourselves and our world. In fact, the whole range of past and present human concerns can be investigated through the academic study of religion, for the religious factor in culture has been a powerful force. Religion is heavily embedded in most of the world’s history, its literary documents, its arts, and its social institutions.

The academic study of religion emphasizes the development of critical and responsible standards of judgment and a sympathetic imagination in order to achieve a lucid understanding of the major themes that have arisen in the history of religions and the relation of these themes to the continuing problems of men and women. These ends are pursued by a study of the various religious traditions, their history, thought, social context, and moral and ritual expression. We seek to be self-conscious about our methods and presuppositions and to be critical of our own scholarly endeavor. In addition, the department is strongly committed to interdisciplinary studies such as a course in evolution taught jointly with the Department of Biological Sciences and other courses taught jointly with business, education, English, geography, and political science.

A major in religion requires fifty-six credit hours of work within the department. Students need to complete the sequence REL 111, 112, and 114 early in their program and to take REL 429 and REL 450 near the end of their studies. In addition, a religion major requires the successful completion of one interdisciplinary course and additional courses from the following six areas, at least one course from each area: American Religion, Biblical Studies, Ethics or Philosophy of Religion, Eastern Religions, Western Religions, and Religion and the Social Sciences for a total of fifty-six or more credit hours. At least twenty-four of these must be at the 300 level or above. Religion majors must also complete twenty-eight hours of related courses selected from a wide range of disciplines related to their areas of specialization. The courses are to be selected in consultation with, and approved by, the adviser. Additionally, students will be required to demonstrate or develop proficiency in a foreign language related to their area of specialization or, with department approval, fulfill a research methods requirement of twenty-one hours. The aim is to allow each student sufficient latitude to explore interests in the arts and sciences to the fullest so as to obtain a genuinely liberal education.

The department also provides a dual major (forty-five credit hours in religion) and a minor (thirty-two hours). See the department chair for complete details.

Any vocation that might follow from a good arts and sciences education is possible for the major in religion. For example, professions such as law, the rabbinate, the ministry, and medicine, and fields such as government and social work, business, or teaching are a few of the possibilities. Normally, the technical training required for most of these fields would come after completion of the baccalaureate program.

The Public Education Religion Studies Center, a program of Wright State University, is located on the university’s main campus. PERSC’s purpose is to encourage and facilitate increased and improved teaching about religion within constitutional bounds in public education. PERSC’s workshops, programs, and services are available to Wright State students.

Religion Honors Program

The Department of Religion encourages superior academic work through full participation in the university’s honors program. Special seminars and discussion sections, departmental reading courses, and other opportunities are available to the superior student. Relatively small classes also make possible a close working relationship between student and professor. Junior and senior students with a 3.0 accumulative average and a religion major or adequate background in religion may participate in the departmental honors program. Interested students should contact the chair of the department.
Degree Requirements—Religion

Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 56-57
REL 111, 112, 114 12
REL 429 4
REL 450 (or 451 or 452) 1
Interdisciplinary course 3-4
Six additional courses, one from each area: 24
American Religion
Biblical Studies
Ethics or Philosophy of Religion
Eastern Religions
Western Religions
Religion and Social Sciences
Religion electives 12
A maximum of eight hours may be credited toward these requirements from REL 470, 481, 482, 483. At least twenty-four hours must be at the 300 level or above.

Foreign Language or Research Methods Requirement 20-24

Related Requirements 28
Approved courses related to area of specialization

Electives 36-41

Total (minimum requirement) 192

Selected Studies

Program Committee Coordinator
Jerome M. Clemens

The program in selected studies allows a student to pursue a self-designed course of study. It is planned for the person with a definite educational objective that diverges from the majors presently offered by the College of Liberal Arts. While the program is free from several traditional requirements, the student must follow certain other requirements and procedures for obtaining the degree.

A student is eligible for admittance to the program after completing forty-five credit hours of study. In consultation with program sponsors, the student formulates a contract outlining study goals and stipulating at least forty-eight credit hours of core courses that help to accomplish those personal goals. The contract is forwarded to the Program Committee for evaluation and approval.

In addition to completing the core and meeting all university and college requirements for graduation, the student must successfully complete at least forty-five credit hours of study in courses numbered 300 or above. Finally, from eight to sixteen hours of credit must be earned in LA 490, Senior Project in Selected Studies. A proposal for the project must be submitted to the Program Committee for approval before the beginning of the student's senior year.

The prospective major in selected studies should see the committee coordinator for more detailed information about the program.

Selected Studies Honors Program
Selected Studies encourages participation of its students in the University Honors Program. A selected studies major may graduate with honors if he/she attains an overall grade point average of 3.4 and an evaluation of excellence on his/her senior project.

Degree Requirements—Selected Studies

Bachelor of Arts Degree

General Education Requirements 47
Core Courses 48
Senior Project (LA 490) 8-16

Foreign Language or Research Methods Requirement 20-24
Electives 57-69

Total (minimum requirement) 192

Ordinarily no more than forty-five hours in one department may be counted toward the degree.

Bachelor of Fine Arts Degree

General Education Requirements 47
Core Courses 48
Senior Project (LA 490) 8-16
Electives 81-89

Total (minimum requirement) 192

Ordinarily no more than a combination of one hundred hours of course work may be taken in the Departments of Art and Art History, Music, and Theatre, and no more than sixty-eight hours in any one department may be counted toward the degree.
Social Work

Associate Professors  Bognar, Engle (chair)
Assistant Professors  Garrison, Gregory

Successful completion of the social work curriculum leads to a professional degree. The major in social work is designed to prepare students to enter social work employment at the beginning level of practice and to prepare students for admission to graduate study in social work. The program is fully accredited by the Council on Social Work Education.

A career in social work requires that an individual possess self-discipline, emotional stability, and intellectual creativity. If you are considering social work as a career, you should be interested in people of widely varying ages, abilities, and backgrounds. You will need to be able to develop rapport with professional colleagues and with many kinds of clients, often in difficult situations.

Career opportunities for the college graduate with a major in social work have expanded rapidly in recent years. Since 1970, the National Association of Social Workers has admitted persons with bachelor's degrees who have completed undergraduate programs in social work.

There are many areas in which a social worker can function in governmental, private, and voluntary agencies. The majority of social workers provide services directly to clients; however, many perform executive or administrative duties. Still others are employed as college professors, research workers, and consultants. Typical agencies that may employ the beginning social worker include family services, children's services, public schools, hospitals, mental health centers, and probation and parole boards.

Newer, expanding fields for social work personnel are developing beyond these traditional services. In particular, recent graduates are finding employment in services to the aged and in the delivery of health services.

Although increasing numbers of graduates are entering social work each year, the demand is still much greater than the supply. This situation is expected to continue at least through the 1980s. Salaries vary according to experience, education, and geographic location, but a graduate with a bachelor's degree can expect to start at about $12,500 a year. Opportunities are equal for both men and women and are open to all racial and national backgrounds.

Social Work Honors Program

The Department of Social Work recognizes those majors who attain superior achievement and has developed a program allowing a student to graduate with honors in social work. In this way, students can receive the maximum benefit from their undergraduate work as they have an opportunity to go beyond classroom expectations and realize goals in original research and analysis. Junior and senior students with a 3.0 overall grade point average and a 3.5 average in social work may apply. Students must initiate and successfully complete an honors project. It is also suggested that they take at least one University Honors 400 interdisciplinary seminar prior to initiating their social work project.

Cooperative Education Program

Cooperative education is available to qualified social work majors in a wide variety of private and public social service agencies. Cooperative education offers students a means of partially financing their education while gaining career-related experience. A limited number of elective course credits will be granted to students who satisfactorily complete their programs. Contact the department chair for further information.

Degree Requirements—Social Work

Bachelor of Arts Degree

General Education Requirements 29-32
Waive Area Three, Group A

Departmental Requirements 56
SW 270, 280, 370, 380, 470, 481, 482, 483, 484, 490, 491
SW 487 12

Related Requirements 38-39
ATH 140, SOC 111, 112 12
COM 102, 343 7
PSY 111, 112 8
PLS 110, EC 201, and political science or economics elective 10-11

Foreign Language or Research Methods Requirement 20-24

Electives 42-50

Total (minimum requirement) 192

Sociology and Anthropology

Professors  Ballantine, Cargan, Cross, Islam, Melko, Savells, Siegal
Associate Professors  Koebern1ck, Riordan (chair), Thatcher, Welty
Assistant Professors  Murray, Orenstein
Instructor  Steinberg (WOBC)

Departmental programs in sociology and anthropology each provide majors leading to the Bachelor of Arts degree.
Sociology

Sociology is concerned with social relations: how people relate to each other as individuals; how they interact in families; how they communicate in business and governmental situations; how they behave collectively in large groups under conditions of stress (as in a football stadium or during a tornado); how their behavior is affected by city or rural living; and how their behavior comes to be perceived as socially acceptable, deviant, illegal, or immoral.

Obviously, human interaction plays a large part in the work and life of all of us. Sociology attempts to observe and measure these interactions, so that we have a better idea of why our social behavior is as it is, so that we can develop programs to change behavior in ways that are likely to be beneficial to individuals and to society, so that we can predict likely outcomes from certain situations, and so that we can better understand what happens, even if we cannot affect it.

Sociologists work on problems of human interaction at all levels. They may focus their attention on interaction between two individuals as when they study interactions between doctors and patients and learn that the doctor’s prescription may depend as much on that doctor-patient relationship as it does on the diagnosis.

Or sociologists may focus on an intermediate problem, such as the relation between the mix of businesses on a street and the safety of that street for its citizens. Or they may focus on a large-scale problem, such as the relation between the involvement of a nation in a total war and the improvement in the collective mental health of its citizens.

Training in sociology provides a student with new perspectives on social interaction and change. Students discover that what they had “always known” is not so, that apparently irrational behavior of friends and family has social significance, and that generally nothing is simple. Such perspectives are extremely valuable in seeing oneself in social perspective, in resolving interpersonal problems, in developing effective interpersonal relations in organizational structures, and in understanding transactions between bosses and employees.

Thus sociology is a useful major for students who hope for careers that involve dealing with people, or who wish to work for large businesses or organizations, or who plan to develop careers in community service, public relations, or teaching.

Degree Requirements—Sociology

Bachelor of Arts Degree

General Education Requirements

Departmental Requirements

SOC 111, 112, 206, 407, 301, 303

Sociology electives (twenty-eight hours must be at the 300-400 level)

Related Requirements

ATH 140 plus at least twenty hours in any courses from anthropology, history, political science, social work, and urban studies, and selected courses from communication, economics, environmental studies, geography, and psychology

Foreign Language or Research Methods Requirement

Electives

Total
Physical anthropology focuses on the biological aspects of the human species. Human behavior and biology are the result of a long evolutionary history, and physical anthropologists study the fossil evidence for human evolution. Studies of biological variability in modern populations are also part of this discipline, since many differences in physical characteristics among populations represent adaptations to different environments.

Students should emerge from an anthropology major with increased insight into their own behavior and its cultural context. They should also have an increased understanding of the source of behavioral and biological differences between themselves and people of other cultures and subcultures. The concept that our way of doing things is simply one way of solving a particular problem, not the only way or the proper way, should lead to improved relationships among people of all backgrounds.

Anthropology Honors Program
Qualified students are encouraged to conduct independent research in one of the subfields of anthropology by enrolling in the department's honors program. Students are eligible for the program if they have an overall grade average of 3.0 and an anthropology average of 3.5 by the end of their junior year. Departmental honors are awarded at graduation upon completion of an honors project under the guidance of a faculty member who serves as an individual's honors adviser. Credit for the project is obtained under ATH 492. Additional information is available from the departmental adviser.

Degree Requirements—Anthropology

Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 56

ATH 140, 141, 142, 448 16
Cultural electives 16
Archaeology electives 12
Physical electives 8
Open elective 4

Within the archaeology electives, students must choose at least one methods/theory course and one area course. ATH 369, Archaeological Field Study, may count for no more than six hours towards major requirements.

Within the cultural electives, students must choose at least one of the following: ATH 340, 349, 450

Related Requirements 24

Selected from economics, geography, history, political science, psychology, sociology, and certain courses from biology, geology, and communication

Foreign Language or Research Methods Requirement 20-24

Electives 37-41

Total 192

Speech Communication
See Communication

Theatre Arts

Professors Bassett (chair), R. Britton
Associate Professor Meyer
Assistant Professors Bartlett-Blair, Beitz, David, Derry, Giannone, Lafferty, Matley, Tanner, J. Tilford, Walker
Instructor Hetherington

The Department of Theatre Arts is devoted exclusively to the training and education of undergraduate students in the areas of dance, motion pictures, and theatre, and offers curricula leading to the Bachelor of Arts and the Bachelor of Fine Arts degrees.

The Department of Theatre Arts is empowered by the Ohio Revised Code to “require particular preliminary training or talent” for admission to specific programs, and each of the six B.F.A. degree programs have specific criteria for admission to each level of training. Students in all areas must achieve a minimum grade point average of 2.0 by the end of the freshman year to be eligible to continue as a major. An open admissions policy is in force only for first time freshman students; all transfer and returning students seeking placement in a B.F.A. program must audition or be interviewed by the faculty for admission into a program. Details of the admission and retention policy are articulated in detail in the Department of Theatre Arts Student Handbook.

Dance
The program in dance is designed to prepare a student for a career as a professional dancer or choreographer in a variety of professional situations. The dance program uniquely fuses into the dance curriculum theatrical and musical training and perspectives, enabling the dance student to prepare for specialized careers in modern and ballet companies or in the professional theatre as a dancer who acts and sings.
The underpinning of the dance curriculum is the daily class in ballet technique with specialized training in modern and jazz-theatre dance. Additional training is required in choreography, dance pedagogy, and dance history. Seniors are required to complete a senior dance project. Required courses outside of dance include studies in theatre, acting, music theory, music literature, and singing.

The department maintains an open admission policy on the freshman level only. All transfer students must audition for acceptance into the program and for placement. Retention in the dance program is predicated on the continual growth of the student as judged by the faculty. Formal evaluations are conducted at the end of each academic year and a positive recommendation by the dance faculty is required prior to enrollment at the next level of training.

Dance majors are required to audition for all Wright State University dance theatre productions and as specified by the dance faculty for other performances, including lecture-demonstrations, dance tours, and dramatic and musical productions. Dance majors must maintain a minimum grade point average of 2.5 to be eligible for graduation.

**Degree Requirements—Dance**

**Bachelor of Fine Arts Degree**

**General Education Requirements** 47

**Departmental Requirements** 96


**Related Requirements** 49

TH 101, 102, 144, 145, 146 22

MUS 110 (nine hours), 141, 142, 143 15

Twelve hours from among the following courses.

MUS 111, 112, 113, 114, or 117 12

**Total** 192

**Motion Pictures**

The curriculum in motion pictures provides a comprehensive study of film as a fine art. Because of its ability to convey the entire spectrum of human experience and imagination, film can be used as a means of exploring those fundamental areas that have always been the preoccupation of liberal arts. The study of film production can provide the individual with an effective and forceful means of artistic expression. To these ends, the curriculum offers two options: the Bachelor of Arts degree in theatre with a concentration in motion picture history, theory, and criticism, and the Bachelor of Fine Arts degree in theatre with a concentration in motion picture history, theory, and criticism, and the Bachelor of Fine Arts degree in theatre with a concentration in motion picture production.

Students are admitted to the motion picture production program (B.F.A. degree) at the end of their freshman year if they have achieved an overall grade point average of 2.0 and have completed TH 131 and 180 with grades of C or above. Before a major may begin the junior or senior year of the production sequence, the major must have a 2.5 grade point average in all motion picture production classes and a 2.25 minimum overall grade point average. Finally, the student must submit an original film to the faculty for evaluation.

To be accepted to the third year, the major must be trained, disciplined, and show promise of benefiting from continued training. All production students are expected to demonstrate growth in film technique and to continue dedicated studies in film history, theory, and criticism. All production incompletes must be finished before a major may sign up for the first course each fall of the higher production sequence.

**Motion Picture Honors Program**

The honors program of motion pictures provides students of superior academic ability the opportunity to use, broaden, and demonstrate their knowledge and skills. To earn a degree with honors, students must complete the departmental major requirements, maintain a superior grade point average throughout their course of studies, and successfully complete a senior honors project, TH 499, sometime in the senior year. To apply for admittance to the honors program, the student must have a cumulative grade point average of 3.5 in her or his major and an overall grade point average of 3.25. Both B.A. and B.F.A. students should contact the head of the motion pictures area or the department chair.

**Cooperative Education Program**

Motion pictures offers its majors the opportunity to participate in Wright State University's Cooperative Education Program. Cooperative education is an optional program which joins participating motion pictures majors, employers, and motion pictures faculty in a formalized process of experience-based learning. Students who enroll in cooperative education supplement classroom study in motion pictures with related work experience (e.g., in an area of film production, distribution, or exhibition) for which they earn additional credit. Through this program, motion pictures majors can improve their professional preparation by acquiring marketable job skills, gain practical experience related to their course of study under the guidance of profes-
Liberal Arts/Theatre Arts

Students in the business; learn to apply their formal education to practical problems encountered in actual work situations; begin to make career choices; and earn income for college expenses.

**Degree Requirements—Motion Picture History, Theory, and Criticism**

**Bachelor of Arts Degree**

The Bachelor of Arts degree integrates a liberal arts education with an emphasis on film as a means of interpreting human experience. Since the motion picture medium encompasses a wide range of expression, a coordinated program of elective courses is individually designed for each student.

**General Education Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Departmental Requirements</td>
<td>65</td>
</tr>
<tr>
<td>TH 101, 131, 180, 231, 232, 233</td>
<td>20</td>
</tr>
<tr>
<td>Additional courses in motion picture history, theory, and criticism, to be chosen from: TH 331, 332, 333, 334, 399, 435</td>
<td>36</td>
</tr>
<tr>
<td>Additional courses in motion picture production, to be chosen from: TH 181, 182, 183, 281, 282, 283, 381, 382, 383, 436</td>
<td>9</td>
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<tr>
<td>Related Requirements</td>
<td>16</td>
</tr>
<tr>
<td>ART 237 or 207</td>
<td>4</td>
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<tr>
<td>MUS 114; 111 or 112 or 113 or 117</td>
<td>8</td>
</tr>
<tr>
<td>LCS 455</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>20</td>
</tr>
<tr>
<td>French recommended</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

**Degree Requirements—Motion Picture Production**

**Bachelor of Fine Arts Degree**

The Bachelor of Fine Arts degree is designed to prepare students for further study and to give them preprofessional training for vocations in many areas of film production; it offers undergraduates an opportunity to develop their creative faculties through this particular medium of artistic expression.

**General Education Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental Requirements</td>
<td>74</td>
</tr>
<tr>
<td>TH 101, 131, 180, 231, 232, 233</td>
<td>20</td>
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<tr>
<td>Additional courses in motion picture production: (must be taken in sequence) TH 181, 182, 183, 281, 282, 283, 381, 382, 383, 436, 481</td>
<td>33</td>
</tr>
<tr>
<td>Additional courses in motion picture history, theory, and criticism, to be chosen from: TH 331, 332, 333, 334, 399, 435</td>
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<tr>
<td>Related Requirements</td>
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<td>LCS 455, 456</td>
<td>8</td>
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<tr>
<td>ART 207, 258, 259</td>
<td>12</td>
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<tr>
<td>MUS 114; 111 or 112 or 113 or 117</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>43</td>
</tr>
<tr>
<td>ART 237, 238, 239 highly recommended</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
</tr>
</tbody>
</table>

**Theatre**

Students who wish to study theatre choose from four professional degree programs leading to the Bachelor of Fine Arts degree, or from the Bachelor of Arts degree in theatre studies. The professional programs are acting, arts management, design/technology, and directing/stage management.

An open admission policy for the B.F.A. programs is applicable for first term freshmen only. All others, including transfer students, must audition or interview for acceptance into a professional program. Each B.F.A. program has established criteria for selective admission and retention, which include the provision that, by the end of the freshman year, a grade point average of 2.0 must be achieved before a student is formally accepted as a major. A majority of the specific programs require higher minimum grade point averages for graduation. The policies are articulated in the following sections and in the Theatre Arts Student Handbook which is issued annually. Students are required to consult quarterly with an academic adviser.

Students who wish to prepare for teaching on the secondary level must follow a theatre-English dual major in the College of Education and Human Services.

**Degree Requirements—Acting**

**Bachelor of Fine Arts Degree**

The acting program is an intensive four-year program of studies in acting, voice, movement, dance, and singing. The third and fourth years are devoted to a Professional Actor Training program which is necessarily limited to selected, superior students, judged capable of high achievement in acting. Admission to the Professional Actor Training program is by audition only at the end of the sophomore year. The first two years of the acting program are in preparation for this audition. Because of the highly sequential nature of the acting program, students are generally admitted only in the fall quarter. Retention in the program is based on the student's growth and development as judged by the acting faculty. All students in the program must receive a grade of C or better to continue in any of the acting sequences. A 2.5 overall GPA is required for graduation.
Degree Requirements—Design/Technology

Bachelor of Fine Arts Degree

The program in design/technology will prepare students for careers in professional theatre as designers (costumes, lights, scenery) or as technicians (technical director, theatre craftspeople). Upon graduation the student has three options: further study on the graduate level, apprenticeship to professional designers, or employment in professional theatre. All design/technology majors must undergo an evaluation by the faculty at the end of each year’s study. Retention in the program is based on the continual growth of the student as determined by the faculty. Professional theatre internships are available for the exceptional student.

General Education Requirements 47

Departmental Requirements 124-125


Related Requirements 33

MUS 110 (nine hours), 141, 142, 143
DAN 111, 112, 113, 211, 212, 213

Total 192

Degree Requirements—Directing/Stage Management

Bachelor of Fine Arts Degree

The directing/stage management major completes the first two years of the acting program before specializing during the junior and senior years in courses related to directing. Most students in this major should plan on continuing their studies at the graduate level.

The directing/stage management program requires a minimum overall grade point average of 2.5. Students who wish to enter the program must apply in writing. Acceptance is based on faculty judgment of the student's potential as a professional stage manager or as a graduate student in directing. Such qualities as self-discipline, academic record, motivation, and communication and interpersonal skills will be considered. Directing opportunities are reserved for students who have won the confidence of the faculty by having demonstrated theatrical knowledge and skills, responsibility and reliability, good judgment, and effective interpersonal relations. Students may be admitted to the program any time after the freshman year, but they will receive evaluations and notices of retention at the end of the sophomore year and at the end of quarters following enrollment in TH 350 and 352.

General Education Requirements 47

Departmental Requirements 88-91

TH 101, 102, 110 (six hours), 120, 131, 144, 145, 146, 154, 155, 156, 244, 245, 246, 254, 255, 256, 257, 258, 259, 301, 350, 352, 360, 361, 362, 366, 367, 368, 410 (three to six hours), 451, 452

Related Requirements 27

MUS 110 (three hours), 141, 142, 143
DAN 111, 112, 113, 211, 212, 213

Electives 27-30

Total 192

Degree Requirements—Theatre Arts Management

Bachelor of Fine Arts Degree

A student may major in theatre arts management by combining studies in theatre and the other arts with studies in the College of Business and Administration. The student who pursues this program must complete forty-five credit hours of required courses in accountancy, administration, economics, finance, management, and marketing; fifty-seven to sixty credit hours of
required courses in theatre, and twenty-nine credit hours of required courses in art, dance, music, motion pictures, English, communication, and library and communication science.

The theatre arts management major emphasizes the practical application of skills. TH 290 (Theatre Management) provides the basis for applying general business practices to the specific problems of the theatre. TH 110 (six hours) and TH 310 (twelve hours) involve the student directly in the activities of the University Theatre production program. Four of the TH 110 hours are devoted to management duties. TH 498 (Professional Theatre Internship) places the student as a management intern with a professional arts organization, concluding the student's training program.

A 2.0 GPA is required for admittance to the theatre arts management major at the end of the freshman year. A 2.5 GPA is required for graduation. All majors are evaluated after each TH 310 enrollment or at the end of each academic year. Evaluation is based upon the student's ability to work effectively with the public, responsibilities in meeting deadlines, and the qualities of professionalism and creativity shown by work in publicity, photography, graphics, writing, and sales. Any student with a poor academic record or lack of significant growth may be asked to drop the program, and the department cannot guarantee the automatic right of students to a professional internship, which is a requirement of graduation.

### General Education Requirements

47

### Departmental Requirements

58-61

TH 101, 102, 110 (six hours), 147
148, 149, 290
310 (twelve hours), 360, 361,
496 (twelve to fifteen hours) and
Elective (three hours)

### Required Courses in Business and Administration

45

ADM 350, ACC 201, 202, 203,
EC 201, 202, 203, FIN 301, 302,
MGT 301, 302, MKT 301, 302, 303, 441

### Related Requirements

29

TH 180, ENG 330, COM 256, and 101 or 102, LCS 455, ART 211 or 212 or 213;
DAN 101 or 111
MUS 111 or 112 or 113 or 117

Electives

10-13

Total

192
Science and Engineering
The College of Science and Engineering offers programs leading to both bachelor's and master's degrees in several disciplines. The Bachelor of Science degree is offered in biology, environmental health, chemistry, computer science, geological sciences, mathematics, physics, and psychology. Bachelor of Science in Engineering degree programs are offered in systems engineering, engineering physics, human factors engineering, materials science and engineering, and biomedical engineering. The college also offers a Bachelor of Science in Computer Engineering degree, and a Bachelor of Science in Medical Technology degree.

Bachelor of Arts programs are available in biological sciences, chemistry, computer science, and psychology. In addition, interdisciplinary baccalaureate programs are offered by some of the departments, such as engineering, geological sciences, mathematics, and physics. Dual major programs are available in virtually all departments (e.g., chemistry-business, physics-education, environmental studies); students should discuss any specific interest with the college adviser. Dual majors will receive a Bachelor of Science degree when both cooperating departments are in the College of Science and Engineering, if approved by both departments. Students interested in certain professional programs ordinarily can take one of the science curricula or a modified program that will be acceptable for graduation, for transfer elsewhere to the desired professional program, or for admission to the Wright State University Schools of Medicine and Professional Psychology.

Admission and Advising

Admission to the college is gained by application. After consultation in the office of the dean, the student will be assigned an adviser in the appropriate department who will assist the student in developing a program of study.

Professional Development Degree in Engineering

The Professional Development Degree program in engineering is a plan of continuing engineering education offering working engineers an opportunity to pursue an organized, individualized, and flexible program of post-baccalaureate study leading to industrial and academic recognition. It offers an alternative to traditional graduate programs for continuing professional growth or redirecting career capabilities.
The POD is an advanced science and engineering degree recognized and approved by the Ohio Board of Regents. It is a new kind of postbaccalaureate degree and not an intermediate step to a master's or any other advanced degree. A candidate who successfully completes an approved program of study will be awarded the degree of Professional Development in Engineering.

Master of Science Degree

Programs leading to a Master of Science degree are offered in biological sciences, chemistry, computer science, systems engineering, geological sciences, mathematics, and physics. There are also two graduate programs intended primarily for secondary school teachers. The Master of Science in Teaching with specialization in earth science is offered by the geological sciences department and the physics department offers the M.S.T. with a specialization in physics.

The College of Science and Engineering and the College of Liberal Arts participate in a multidisciplinary program leading to the degree of Master of Arts in applied behavioral science. The program is jointly administered by a steering committee with representatives from the Departments of Psychology, Political Science and Urban Affairs, and Sociology and Anthropology.

Doctor of Philosophy Degree

A Ph.D. degree program in biomedical sciences began in the fall quarter of 1979. Cooperatively administered by the College of Science and Engineering and the School of Medicine, the biomedical sciences program is staffed by the largest program faculty on campus. This doctoral program requires approximately four years of study. The first year curriculum consists of an interdisciplinary basic biological core with accompanying mathematical applications. Advanced interdisciplinary courses and laboratory practica are offered in the second year. After successfully completing candidacy examinations, students will pursue scholarly research, present seminars, and gain teaching experience. Final degree requirements are met by satisfactorily defending an acceptable written dissertation.

Degrees and Areas of Study

Degrees and Areas of Study

Requirements for the Bachelor of Science Degree

To be eligible for the Bachelor of Science degree, a student must:

1. Fulfill the university General Education requirements.
2. Complete the residency requirement of forty-five credit hours at Wright State. At least fifteen of the last forty-five hours for the degree must be taken in residence.
3. Complete at least 183 credit hours of acceptable academic work with at least a 2.0 cumulative average and at least a 2.0 average in a major field. A student may find it necessary to earn more than 183 credit hours to meet the requirements of the curriculum chosen.
4. Complete at least seventy-five credit hours in advanced courses (numbered 200 and above) applicable to the degree.
5. Complete at least fifty-four credit hours in one department, by permission of the department chair, up to eighteen hours of this requirement may be taken in a closely related field.
6. Complete all the requirements in one of the approved programs of study established by the departments or within the college. A student must take at least ninety-five credit hours outside the major department.

Requirements for the Bachelor of Arts Degree

To be eligible for the Bachelor of Arts degree in the College of Science and Engineering, a student must complete the requirements listed for the Bachelor of Science and must also:

1. Complete at least twenty-seven hours in departments outside the College of Science and Engineering. The level and type of courses to be taken are subject to the discretion and approval of the student’s major department. These courses are in addition to those needed to fulfill the General Education requirements.
2. Complete at least three courses in a department in the College of Science and Engineering other than the major department. These courses are in addition to those needed to fulfill the General Education requirements.
Honors Program
Departmental honors programs are available in biological sciences, chemistry, computer engineering, computer science, engineering, geological sciences, mathematics, physics, and psychology. These honors programs give well-qualified students the opportunity to carry out an independent research project and pursue advanced coursework. A student interested in pursuing an honors program should consult with the chair of the appropriate department. Honors are awarded at graduation, upon completion of the requirements.

Cooperative Education Program
The cooperative education program permits students to integrate work experience into their academic programs. The nonacademic credit model is available in the departments of the College of Science and Engineering.

Teacher Certification
Students seeking certification to teach in secondary schools should make application for admission to the teacher certification program at the beginning of their junior year. These students should contact a teacher certification adviser in the College of Education and Human Services.

Anatomy
**Professors** Rolsten, Zambernard (chair)
**Associate Professors** Nagy, Phelps, Scott
**Voluntary Associate Professors** Call, Makkar
**Assistant Professors** Bartley, Kuntzman, Migally, Pearson, Pendergrass, Ream
**Voluntary Assistant Professor** Phillips

The Department of Anatomy encompasses the areas of gross anatomy, microanatomy (histology, cell biology, transmission electron microscopy, scanning electron microscopy), embryology, and neuroanatomy. The department provides limited course work at the undergraduate level for students planning to enter medicine, nursing, or other health-related professions. It also provides course work at the professional level under the auspices of the School of Medicine and the College of Science and Engineering. Although the department does not offer a graduate degree in anatomy, a student may develop a concentration in anatomy for a Master of Science degree in biological sciences.

Biological Chemistry
**Professors** Batra, Kmetec, Servé, Seybold, Varandani, Weisman (chair)
**Associate Professors** Fritz, Organisciak
**Assistant Professors** Alter, Cohen, Flick, Harrison, Leffak, Prochaska

The Department of Biological Chemistry offers courses in the molecular aspects of cellular processes and components, as well as in nutrition. Although the department does not offer a formal baccalaureate degree program, it can serve as an area of concentration for those interested in obtaining a background prior to pursuing a career in medicine and related biomedical sciences.

Honors Program
Under the biological sciences honors program, it is possible for a student to do an undergraduate honors thesis with a faculty member from the Department of Biological Chemistry. Students interested in this area of study need background courses in biology, other life sciences, and chemistry.

Biological Sciences
**Professors** Arlian, Honda, Hubschman, Hutchings, Kantor
**Adjunct Professor** Juberg
**Associate Professors** Amon, Barbour, Carmichael, Lucas, Norris (WOBO), Rake, Rossmiller (chair), Seiger, Wood
**Adjunct Associate Professor** Hagan
**Assistant Professors** Foley, Harrison, Runkle
**Adjunct Assistant Professors** Carroll, Coleman, Fiene, Livingston
**Clinical Instructor** Forster
**Adjunct Instructors** Evans, Gillieland, Martin, Schnegelberger

The Department of Biological Sciences offers the following degree programs: Bachelor of Science and Bachelor of Arts in biology, Bachelor of Science in Medical Technology, Bachelor of Science in environmental health, and Master of Science in biology. Dual major programs with chemistry or environmental studies are available.

The teaching and research programs of the department are conducted in modern, well-equipped classrooms and laboratories. A 200-acre biology preserve on campus and nearby parks and preserves provide excellent opportunities for terrestrial and aquatic field studies.

Individual programs of study are planned with the assistance of a departmental adviser within the
framework of university, college, and departmental requirements. Many undergraduate students include faculty-guided, independent study research projects in their academic programs.

Biological Sciences Honors Program
An honors program enables qualified students to carry out an independent project under the guidance of a faculty sponsor. Students who have maintained a cumulative average of 3.4 during the preceding three quarters may petition the Department of Biological Sciences to pursue an honors program. Application for admission to the program should be made during the junior year. Information concerning this program is available from the department office.

Biological Sciences
The Bachelor of Science curriculum offers a broad, integrated, in-depth approach to the life sciences. The departmental unit consists of a balanced core of courses selected from several subject areas combined with elective courses from the Departments of Biological Sciences, Anatomy, Physiology, Biological Chemistry, and Microbiology and Immunology.

Within this degree, several different options are open to the student. Programs of study for students with such differing interests and objectives as graduate work in molecular biology, laboratory work in microbiology, field work in ecology, or preprofessional preparation for medical, dental, or veterinary sciences can be accommodated. The biobusiness option contains a business minor. Other curricular options within the Bachelor of Science degree in biology are general, genetics, microbiology, premedical, toxicology, and ecology.

All of the options for the Bachelor of Science degree in biology have a similar pattern of course requirements which is outlined for the general option in the following section. The curriculum outlines for the other options are available from departmental faculty advisers and in the departmental office. Students will formulate a specific plan of study in consultation with their faculty adviser.

Degree Requirements—Biology

Bachelor of Science Degree
General Education Requirements 35
Waive Area Two
Departmental Requirements 75-76
Area A (three courses)
BIO 111, 112, and BIO 113 or 114, or, with adviser approval, one Area B course listed below. A course may not be used to satisfy both Area A and Area B requirements. 12-13

Required Supporting Courses 67-71
CHM 121, 122, 141 15
CHM 211, 212, 213, 215, 216, 217 18
PHY 101, 102, 103, 111, 112, 113 or 200, 201, 202, 240, 241, 242 13-15
MTH 132, 133, 231; or MTH 132 or 224, 226, and STT 164/165, 265/266 or 466, 467 13-15
Each student must also complete a laboratory course in analytical chemistry or a two-quarter sequence in computer science 7.5-8
Electives 14-19
Total (minimum requirement) 196

Bachelor of Arts Degree
The Bachelor of Arts curriculum is less structured than the Bachelor of Science curriculum. It provides a substantial foundation in the biological and physical sciences while the large number of elective credits allows students considerable flexibility in meeting their individual educational objectives. Students will formulate a specific plan of study in consultation with their faculty adviser.

General Education Requirements 35
Waive Area Two

Departmental Requirements 50-51
Area A (three courses)
BIO 111, 112, and BIO 113 or 114, or, with adviser approval, one Area B course listed below. A course may not be used to satisfy both Area A and Area B requirements. 12-13
Area B (three courses)
BIO 202, 203, 204, 205, 206 15
Area B (three courses)
BIO 307 or 402/405 6
Area E
BIO 492 2
Area F (life science electives)
A minimum of twenty-five credits selected from 300- and 400-level courses in the Department of Biological Sciences. Courses in physiology, microbiology and immunology, anatomy, or biological chemistry may also be used to fill Area F requirements. In certain specified programs, up to ten credits of this requirement may be elected from 300- or 400-level courses in other departments in the college. Students should consult the adviser regarding recommendations for specific programs. 25
Area C (three courses)
BIO 302/312, 303, 304, 305, 306, 403  15

Area D (one course)
BIO 307 or 402/405  6

Area E
BIO 492 2

Required Supporting Courses 45.5
CHM 121, 122, 141  15
CHM 211, 212, 213, 215  14
PHY 111, 112, 113, 101, 102, 103 13.5
MTH 130 3

Electives 65.5
Must include ten credits (300 level and above) in the Department of Biological Sciences, and twenty-seven credits in academic courses outside the College of Science and Engineering. At least twenty-three of the elective credits must be in courses at the 200 level or above.

Total (minimum requirement) 196

Medical Technology

The medical technology program includes three years of prescribed study at Wright State University and a one-year clinical laboratory curriculum in medical technology programs accredited by the American Medical Association Council on Medical Education through the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS). Upon successful completion of the program, the student receives the Bachelor of Science degree in Medical Technology and is eligible to take the national certification examination given by the Registry of Medical Technologists (ASCP) and the CLS examination administered by the National Certification Agency for Laboratory Personnel. Wright State has affiliation agreements with the following medical technology programs which supply the fourth-year clinical laboratory training: Good Samaritan Hospital, Kettering Medical Center, Miami Valley Hospital, St. Elizabeth Medical Center, Community Hospital of Springfield and Clark County, St. Rita's Medical Center, and Wright State University Allied Health Professions. Through special arrangements, students may obtain their clinical training in other NAACLS accredited schools of medical technology after receiving approval from the chair of the Department of Biological Sciences.

In the fall quarter of their junior year, students apply, through the department, to the medical technology programs for admission into the clinical laboratory program. Criteria used to determine admission of individual students by the medical technology programs include the academic record, letters of recommendation, results of a personal interview, and an overall assessment of the potential of the individual for a career as a medical technologist. Responsibility for acceptance of individual students resides with the affiliated medical technology clinical programs. The number of positions in the class for each medical technology clinical program is limited.

Students may enter the clinical training program only after completion of the prescribed program of study at the university (a minimum residence of one year is required). Additional information about this degree program is available from the Department of Biological Sciences.

Degree Requirements—Medical Technology

Bachelor of Science in Medical Technology Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 44-45
BIO 112, 113  8
BIO 202, 206 10
BIO 302/312, 305 10
BIO 303 or 307 5-6
BIO 402/405  6
BIO 476/477  5

Required Supporting Courses 74
CHM 121, 122, 141  15
CHM 211, 212, 213, 215, 216, 217  18
CHM 312, 314  7.5
PHY 101, 102, 103, 111, 112, 113 13.5
MTH 129, STT 164/165, 265/266 11
M&I 426, 427, 428  9

Clinical Program 52
BIO 434 through 449

Total 205-206
In a program such as this, the sequence in which courses are taken is of extreme importance. The following schedule should be followed closely and all individual programs should be planned with an adviser.

Freshman Year
BIO 112, 113; CHM 121, 122, 141; mathematics. Results of the mathematics placement examination will be used to determine the proper initial mathematics course; see mathematics course descriptions

Sophomore Year
200- and 300-level biology and chemistry courses; General Education courses

Junior Year
300- and 400-level biology and microbiology and immunology courses; CHM 312, 314, PHY 111-113; General Education electives

Senior Year
Clinical program
Environmental Health

The curriculum in environmental health provides students with a sound academic background and the specialized training and experience needed to work effectively in several areas involving the environmental aspects of human health. Career opportunities include work in public health agencies, environmental consulting firms and analytical laboratories, health and safety programs in industries, or advanced study in graduate programs in public health. A field internship program, operated in cooperation with participating environmental health agencies or industries, affords an opportunity for practical experience in a working situation. The program of study which meets the needs and interests of the students is planned in consultation with a departmental adviser.

Degree Requirements—Environmental Health

Bachelor of Science Degree

General Education Requirements 35
Waive Area Two

Environmental Health Core 59
BIO 292, 492 3
BIO 360, 361, 362, 363, 364, 365 18
BIO 415, 461, 462, 463, 464, 466, 467, 468, 486, 487 29
BIO 366 (Field Internship) 9

Required Supporting Courses 82.5
BIO 111, 112, 113 12
BIO 202, 305, 476, 477 15
CHM 121, 122, 141, 361 19
PHY 101, 102, 103, 111, 112, 113 13.5
MTH 129, STT 164/165, 265/266 11
GL 101, 201 8
CS 141 4

Social Sciences 8
Two courses, 200-level or above
Electives 13.5

Total 198

The order in which science courses are taken is important. Students should adhere closely to the following schedule.

Freshman Year
BIO 111, 112, 113; CHM 121, 122, 141; MTH 129

Sophomore Year
BIO 202, 305, 292; CHM 361; GL 101, 201;
STT 164/165, 265/266; CS 141

Junior and Senior Years
300- and 400-level environmental health courses; physics

Dual Major Program

The Department of Biological Sciences participates in the university's dual major program with the Department of Chemistry and the Office of Environmental Studies. Students are referred to the departmental office for program requirements.

Chemistry

Professors Battino, Carragher (chair), Cummings, Harris, Karl, Servé, Seybold, Skinner, Tiernan
Associate Professors Feld, Fortman, Ghosh (WOBC), Hess, Kane, Katovic
Adjunct Associate Professor Spanier
Assistant Professors Cook, DiNunzio, Turnbull

The Department of Chemistry offers programs leading to the Bachelor of Arts, Bachelor of Science, and Master of Science degrees in chemistry. The Bachelor of Science in Education degree is also available with a concentration in chemistry. The Bachelor of Arts and Bachelor of Science curricula are designed to prepare undergraduate students for careers as professional chemists, entrance into medical or dental schools, or graduate work in chemistry. Both programs are flexible and permit the options of heavy concentration in chemistry courses or a combination of a chemistry major with extensive course work in allied (other sciences) or nonallied (e.g., business, arts) areas. In order to develop their academic programs to meet specific needs and individual interests, students should consult their academic advisers. The Bachelor of Science program is approved by the American Chemical Society.

Chemistry Honors Program

Qualified students may be admitted to the departmental honors program during their second or third year. The program involves work beyond the minimum course requirement for the B.S. degree with emphasis on independent studies.

Degree Requirements—Chemistry

Bachelor of Science Degree

The Bachelor of Science candidate is required to complete the chemistry, mathematics, and physics course sequences in the following program outlined with these exceptions: CHM 499, Special Problems in Chemistry, is not required; however, it is expected that the serious chemistry major will complete at least four credit hours of this research course during the senior year. CHM 319, Chemical Literature, is strongly recommended but not required. Although there is no foreign language requirement, two years of study in German, French, or Russian, or one year each of two of these languages, is strongly recommended.
In the Bachelor of Science program with an orientation for the premedical student, CHM 311, 420, and 421 are not required. The student must take CHM 313 and 315. The physics requirement may be met with the PHY 111, 112, 113 sequence and PHY 101, 102, 103 laboratories. BIO 111, 112, and 114 are required. At least two courses must be elected from BIO 202, 206, 302, 303, 305, 307, 403. In addition, the student must take at least nine credit hours selected from BCH 421, 423, BIO 402, CHM 420, 421, 465/467, 466/468, 440, and 441. The student serious about medical school should elect BCH 421 and 423. Students should also be careful to fulfill all university and college degree requirements.

Because the order in which science courses are taken is so important, students are advised to adhere closely to the following schedule, bearing in mind that all individual programs are to be planned in consultation with an adviser.

**Freshman Year**

Freshman English: CHM 121, 122, 141; MTH 132, 133, 231

**Sophomore Year**

CHM 211, 212, 213, 215, 216, 217; PHY 240, 241, 242

**Junior Year**

CHM 311, 312, 313, 314, 315, 319, 451, 452, 453, 457, 458

**Senior Year**

CHM 420, 421

**General Education Requirements**

35

**Waive Area Two**

**Departmental Requirements**

74.5

CHM 121, 122, 141; 211, 212, 213, 215, 216, 217 33

CHM 311, 312, 313, 314, 315, 451, 452, 453 31.5

CHM 420, 421, 457, 458 10

**Related Course Requirements**

32

MTH 132, 133, 231 15

PHY 240, 241, 242, 243 (with labs), or 111, 112, 113 (with labs) 13.5

Science electives 12

**Foreign Language Requirement**

21

**Additional Courses outside Science and Engineering**

27

**Electives**

15.5

**Total (minimum requirement)**

196

---

Bachelor of Arts Degree

The Bachelor of Arts degree candidate is required to complete the chemistry, mathematics, and physics course sequences in the program outlined below. Additional requirements include twelve hours of science electives and two years of foreign language study. The science elective requirement may be satisfied with any course sequence in the College of Science and Engineering, including additional chemistry courses or individual research projects (CHM 499). The foreign language requirement may be satisfied with two years of study in any foreign language or one year each of two languages.

Chemistry majors who are Bachelor of Arts degree candidates are also required to earn twenty-seven credit hours (eighteen of which must be 200 level or above) outside the College of Science and Engineering. This requirement may not be satisfied with courses used to fulfill foreign language or General Education requirements. In order to ensure a reasonably high level of exposure in some area, it is further required that the student complete at least thirty hours in courses numbered 300 or higher applicable to the degree.

**General Education Requirements**

35

**Waive Area Two**

**Departmental Requirements**

53.5

CHM 121, 122, 141; 211, 212, 213, 215, 216, 217 33

CHM 312, 314; 451, 452, 453, 457, 458 20.5

**Related Course Requirements**

40.5-44

MTH 132, 133, 231 15

PHY 240, 241, 242, 243 (with labs); or 111, 112, 113 (with labs) 13.5

Science electives 12

**Foreign Language Requirement**

21

**Additional Courses outside Science and Engineering**

27

**Electives**

15.5-19

**Total (minimum requirement)**

196

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Dual Major Degree Requirements—Chemistry

The Department of Chemistry participates actively in the university's dual major program. The chemistry requirements for a dual major are given below.

**Dual Major Requirements in Chemistry**

**General Education Requirements**

35

**Waive Area Two**

**Departmental Requirements**

53.5

CHM 121, 122, 141; 211, 212, 213, 215, 216, 217 33

CHM 312, 314; 451, 452, 453, 457, 458 20.5
A curriculum for a typical dual major program, leading to a Bachelor of Science degree in chemistry and environmental studies, is shown below.

Sample Dual Major Curriculum

General Education Requirements 35
Waive Area Two

Departmental Requirements 53.5
CHM 121, 122, 141, 211, 212, 213, 215, 216, 217 33
CHM 312, 314, 451, 452, 453; 457, 458 20.5

Related Course Requirements 40.5-44
MTH 132, 133, 231 15
PHY 240, 241, 242, 243 (with labs); or 111, 112, 113 (with labs) 13.5-17
Science electives 12

Environmental Studies Option 40

Environmental Studies Core
ENV 111, 112, 113; 211, 212, 213 18

Related Courses
Selected from anthropology, biological sciences, economics, education, engineering, geography, geology, management, marketing, philosophy, political science, psychology, sociology, urban studies 22

Electives 23.5-27
Foreign language required for B.A. degree

Total (minimum requirement) 196

Computer Engineering

Professors  Crum (chair), Davis, Dixon, Gorowara, Petrofsky
Associate Professors  Bethke, Brandeberry, Kohler, McCormick, Rattan, Ross, Sanders
Assistant Professor  Kim
Assistant Visiting Professors  Hemmendinger, Shock
Instructors  Dobbs, Jefferis

A program of study leading to a Bachelor of Science in Computer Engineering degree is offered by faculty from the Department of Computer Science and the Department of Engineering. This program emphasizes the design and implementation of computer systems. The distinction between a computer and a computer system is significant. A computer is simply an item of hardware. A computer system incorporates many diverse elements including the computer, the interface, the firmware, the operating system, the system software, the applications programs, and even the apparent intelligence of the system.

The program in computer engineering provides a solid mathematics, basic science, and engineering science base that is common to all quality engineering programs. It emphasizes the theory and design of both hardware and software systems. Modern methodology for the design and verification of reliable, maintainable, real time software is studied. Techniques for the design, breadboarding, testing, and implementation of computer hardware are stressed. The program allows a wide range of electives to strengthen individual specialties in theory, design, and/or applications.

State-of-the-art laboratories provide a facility for design, experimentation, observation, implementation, and discovery which ideally complement the theoretical portion of the program.

The graduate of this computer engineering program is prepared to supervise, design, and implement computer-imbedded systems employing hardware, software, and firmware.

Admission

Students are eligible for admission to the baccalaureate degree program in computer engineering when they have

1. Completed the freshman computer science sequence (CS 141, 142, 146).
2. Attained a 2.25 grade point average in computer science and computer engineering courses.
3. Attained a 2.25 grade point average overall in Wright State University courses.

When these requirements have been met, students will be advised by the computer engineering faculty. Until that time, they will be in pre-computer engineering and will be advised by University Division or the College of Science and Engineering.

Computer Engineering Honors Program

The honors program in computer engineering provides an opportunity for intellectually gifted students to develop their interests and abilities by pursuing carefully coordinated programs of independent study which improve the breadth and depth of their educational experience in ways not usually available in the normal program of study.
Science and Engineering/Computer Engineering

To gain admission to the honors program in computer engineering, a student must:

1. Have an overall grade point average of 3.25.
2. Have completed four of the following seven courses: CS 400, 433, CEG 320, 360, 421, 430, 431, or equivalent transfer credit.
3. Have senior standing (136+ hours earned, including accepted transfer credit).
4. Have at least three quarters of study remaining.
5. Demonstrate academic excellence, strong self-motivation, perseverance, and in general, the ability to pursue advanced study.

For additional information on the honors program, contact the computer science department.

Cooperative Education Program

The cooperative education program allows students to integrate work experience into their academic programs. The nonacademic credit model is available in this department.

Cooperative education students are expected to have completed the first two years of the computer engineering degree model program before beginning the work experience component. Students having completed only one year of the model program may be considered providing that they have at least a 3.0 GPA overall and in their major. Such students are strongly encouraged to take CEG 260 before the first work experience.

Degree Requirements—Computer Engineering

Bachelor of Science in Computer Engineering Degree

General Education Requirements 35
Area One 8
Area Three 27
Mathematics Requirements 31
MTH 132, 133, 231, 232, 233 25
MTH 253, 257 6
Physics Requirements 24
PHY 200, 201, 202, 240, 241, 242 15
PHY 300, 301, 420 9
Chemistry Requirement
Students who have not previously completed a course in chemistry must take CHM 121

Computer Science Requirements 20
CS 141, 142, 146 12
CS 400, 433 8

Computer Engineering Requirements 32
CEG 260, 360 8
CEG 320 4
CEG 402, 421, 430, 431, 453 20

Additional Engineering Requirements 42
EGR 212, 213 9
EGR 320, 321, 322 11.5
EGR 341, 345, 441, 444, 449 21.5
Electives 16

Electives must be chosen with the consent of an adviser to provide a coherent major concentration and design experience.

Total 200

The order in which science courses are taken is important. Students should obtain a model program sheet from the computer science department office or from their adviser. All programs should be planned in consultation with an adviser.

Computer Science

Professors  Crum (chair), Davis, Dixon, Petrofsky, Schaefer
Associate Professors  Brandeberry, Kohler, Ross, Sanders
Assistant Professors  Hawley (WOBC), Kim, Pollack, Smith
Assistant Visiting Professors  Hemmendinger, Shock, Sudkamp
Instructors  Carson, Cook, Courte, Dobbs, Guild, Jefferis, Saks

The computer science degree programs are designed to provide a blend of theory and practice in traditional and modern areas of computer science. The various programs allow students to combine a wide variety of courses in programming, data processing, and computer systems design with courses in business, engineering, science, mathematics, statistics, and other areas. The cooperative education program permits students to obtain supervised work experience which can be integrated with their academic course work.

The department offers both Bachelor of Science and Bachelor of Arts degrees in computer science. Each allows for a concentration in the discipline of the student's choice. A Bachelor of Science in Computer Engineering degree is offered jointly with faculty in the Department of Engineering. All courses of study may be taken as a cooperative education program.

The Bachelor of Science or Bachelor of Arts programs prepare students for careers in computing by providing a thorough foundation of physical science, mathematics, and computer science. By selection of electives, students can tailor the program to match their special interests. The concentrations combine computer science with many areas of science, business, or the arts. The concentrations provide optimal background to use computers effectively in the solution of practical problems.
Admission

Students are eligible for admission to the baccalaureate degree programs in computer science when they have:

1. Completed the freshman computer science sequence (CS 141, 142, 146).
2. Attained a 2.25 grade point average in computer science and computer engineering courses.
3. Attained a 2.25 grade point average overall in Wright State University courses.

When these requirements have been met, students will be advised by the computer science faculty. Until that time, they will be in pre-computer science and will be advised by University Division or the College of Science and Engineering.

Computer Science Honors Program

The department offers an honors program in computer science which provides an opportunity for intellectually gifted students to develop their interests and abilities by pursuing carefully coordinated programs of independent study which improve the breadth and depth of their background.

To gain admission to the honors program in computer science, a student must:

1. Have an overall grade point average of 3.25.
2. Have completed five of the following seven courses: CS 400, 466; CEG 320, 360, 421, 430, 431, or equivalent transfer hours.
3. Have senior standing (136 hours earned, including accepted transfer credit).
4. Have at least three quarters of study remaining.
5. Demonstrate academic excellence, strong self-motivation, perseverance, and in general, the ability to pursue advanced study.

For additional information on the honors program, contact the computer science department chair.

Cooperative Education Program

The cooperative education program permits students to integrate work experience with their academic programs. The nonacademic credit model is available in this department.

Cooperative education students are expected to have completed the first two years of the computer science degree model program before beginning the work experience component. Students having completed only one year of the model program may be considered providing they have at least a 3.0 gpa overall and in their major.

Degree Requirements—

Bachelor of Science Degree

General Education Requirements 35
Area One 8
Area Three 27
Mathematics Requirements 29
MTH 132, 133, 231 15
MTH 253, 257 6
STT 360, 361 8
Physics Requirements 15
PHY 200, 201, 202, 240, 241, 242 24
Language Requirements 12
English (200 level or above) or foreign language*
Computer Science Requirements 20
CS 141, 142, 146 12
CS 400, 466 8
Computer Engineering Requirements 20
CEG 260, 360 8
CEG 320 4
CEG 430, 431 8
Computer Science/Engineering Electives 24
Select from:
Up to four hours of programming language workshops
CS 316, 317
CS and CE 400-level courses
Second Concentration Requirements 32
Thirty-two hours from a single liberal arts or science and engineering department program, or a specific program approved by the computer science department
Elective Requirements 8
Select from acceptable general education list, or any 200-level and above course
Total 195

*Includes comparative literature, linguistics, modern language humanities, and classics (CLS, CPL, DN, FR, GER, GR, ITA, LAT, LI, ML, POL, POR, RUS, SPN)

No course may count toward two distinct sets of degree requirements.

A model program is available in the computer science office.

Bachelor of Arts Degree

General Education Requirements 35
Area One 8
Area Three 27

Degree Requirements—

Bachelor of Science
Mathematics Requirements 21
MTH 132, 133 10
MTH 253 3
STT 360, 361 8

Physics Requirements 13.5
PHY 101, 102, 103, 111, 112, 113

Language Requirements 12
English (200 level or above) or foreign language*

Computer Science Requirements 20
CS 141, 142, 146 12
CS 400, 466 8

Computer Engineering Requirements 20
CEG 260, 360 8
CEG 320 4
CEG 430, 431 8

Computer Science/Engineering Electives 24
Select from:
Up to four hours of programming language workshops
CS 316, 317
CS and CEG 400-level courses

Second Concentration Requirements 32
Thirty-two hours from a single liberal arts department or a specific program approved by the computer science department

Electives Requirements 17
Select from acceptable General Education list, or 200-level and above courses

Total 194.5

*Includes comparative literature, linguistics, modern language humanities, and classics (CLS, CPL, DN, FR, GER, GR, ITA, LAT, LI, ML, POL, POR, RUS, SPN)

No course may count towards two distinct sets of degree requirements.

A model program is available in the computer science office.

Specific Programs

Business as a Second Concentration

Second Concentration Requirements 42
EC 201, 202, 203* 9
ACC 201, 202, 203 9
MGT 301, 302 6
MKT 301, 302 6
FIN 301, 302 6
QBA 303, 304** 6

*Fulfills part of the General Education (social science) requirements.

**STT 360 and 361 are a substitute for the specified prerequisites for QBA 303 and 304.

This concentration applies to either the Bachelor of Science or Bachelor of Arts programs. However, for the Bachelor of Arts program, the language requirements are increased to twenty hours and the electives requirements are reduced to eight hours. For the Bachelor of Science program, the electives requirement is reduced to seven hours.

The addition of ADM 350 may qualify one for the formal business minor. Apply with the College of Business and Administration when applying for graduation.

Science Option as a Second Concentration

Second Concentration Requirements 36
MTH, EGR* 12
Courses from one science and engineering department program 24

The electives requirement for this option is reduced to four hours.

This option applies only to the Bachelor of Science program.

Engineering

Professors Jankowski, Petrofsky, Rolsten, Wells (chair)

Professor Emeritus Ritchie

Adjunct Professors Burte, Gegel, Grove, Lipsitt

Associate Professors Bethke, Brandeberry, Dadras, Faghri, Hannen, McCormick, Phillips, Rattan, Spalding, Thomas

Adjunct Associate Professors Crane, Grissom (coordinator with Central State University)

Assistant Professors Friar, Gill, Reynolds, Siferd, Weiss

The Department of Engineering currently offers programs leading to the Bachelor of Science in Engineering degree in systems engineering, engineering physics, human factors engineering, materials science and engineering, and biomedical engineering.

Programs in computer engineering and engineering geology are offered jointly with the Departments of Computer Science and Geological Sciences, respectively.

The programs in the Department of Engineering are characterized by their timely and interdisciplinary nature. They present traditional areas of engineering in modern terms and develop the bounds of established engineering areas. Laboratory facilities cover the areas of semiconductor devices, electronic
circuits, digital controls, integrated circuits, control systems, robotics, fluids, vibrations, metallography, materials testing, manufacturing processes, numerical simulation, scanning electron microscopy, and engineering design.

Admission

All new freshmen are assigned to the University Division for academic advising. A pre-engineering student is eligible for admission to an engineering major when the following criteria are satisfied:

1. At least forty-five credit hours of academic credit.
2. Cumulative grade point average of at least 2.25.
3. Completion of MTH 231, Calculus III.

Upon admission to an engineering major, the student is transferred to the Department of Engineering for academic advising.

In general, transfer students who are seeking admission to an engineering major must satisfy the previously listed criteria for pre-engineering students. Transfer students who do not satisfy these criteria may be admitted to the University Division or to the College of Science and Engineering for academic advising pending the completion of the requirements for admission to an engineering major.

Engineering Honors Program

The department offers an Honors Program in engineering. This program provides educational opportunities for talented students to advance their knowledge beyond the provisions of the regular curriculum.

Admission to the Honors Program requires completion of at least 130 but not more than 150 credit hours; an overall grade point average of 3.25; and securing a faculty sponsor by having demonstrated academic excellence and motivation for advanced study and research.

For additional information on the honors program, contact the Department of Engineering.

Cooperative Education Program

The cooperative education program permits students to integrate work experience into their academic programs. The nonacademic credit model is available in this department.

Students who are interested in the cooperative education program should file an application with the cooperative education office during their first year of study.

Systems Engineering

Systems engineering combines traditional mechanical and electrical engineering skills with modern analytical and computer approaches to problem solving. This program prepares the contemporary engineering student with the necessary skills for such diversified tasks as designing and using miniature operational amplifiers and analyzing the dynamics of large flexible spacecraft.

Students take a general engineering program for their first two years and then specialize in either the mechanical or the electrical option. This allows the systems concepts to be incorporated into a traditional area of study.

The interdisciplinary nature of the systems engineering program is perhaps its most distinctive feature. This has been achieved by a faculty having backgrounds from mechanical, electrical, and aeronautical engineering; it is sustained by course offerings designed to emphasize the commonality of these areas.

The courses required for the degree are outlined below. Selection of an option enables students to prepare themselves for employment or graduate study in the fields of electrical engineering or mechanical engineering. Technical electives permit further specialization or broadening within an option.

Because the order in which engineering courses are taken is important, students should obtain a program guide from the engineering office. Since certain engineering electives are recommended for each of the preceding options, all programs are to be developed by the student in consultation with an adviser.

Both the electrical option and the mechanical option are fully accredited by the Accreditation Board for Engineering and Technology (ABET).

Degree Requirements—Systems Engineering/Electrical Option

Bachelor of Science in Engineering Degree

General Education Requirements 35

Waive Area Two

Departmental Requirements 91.5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 121, 141, 142</td>
<td>9.5</td>
</tr>
<tr>
<td>EGR 212, 213</td>
<td>8</td>
</tr>
<tr>
<td>EGR 313, 315, 320, 321, 322, 341, 345</td>
<td>28</td>
</tr>
<tr>
<td>EGR 421, 425, 426, 430, 435, 441, 444, 449, 450, 490, 491</td>
<td>46</td>
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</tbody>
</table>

Related Course Requirements 59

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MTH 132, 133, 231, 232, 233, 253</td>
<td>28</td>
</tr>
<tr>
<td>CS 210</td>
<td>3</td>
</tr>
<tr>
<td>CHM 121, 122</td>
<td>10</td>
</tr>
</tbody>
</table>
Science and Engineering/Engineering

PHY 200, 201, 202, 240, 241, 242  
STT 363  
Technical Electives*  

Total  200.5

*One half of the hours must be engineering electives; the remainder may be any course numbered 200 or above (except EC 201, 202, 203, and EGR 405) offered by the College of Science and Engineering or the College of Business and Administration.

Degree Requirements—Systems Engineering/Mechanical Option
Bachelor of Science in Engineering Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 86
EGR 121, 141, 142  
EGR 212, 213  
EGR 313, 315, 317, 318, 320, 321, 322, 360, 370  
EGR 405, 407, 414, 425, 426, 430, 490, 491 35.5

Related Course Requirements 59
MTH 132, 133, 231, 232, 233, 253 28
CS 210 3
CHM 121, 122 10
PHY 200, 201, 202, 240, 241, 242 15
STT 363 3

Technical Electives* 19

Total  199

*One half of the hours must be engineering electives; the remainder may be any course numbered 200 or above (except EC 201, 202, and 203) offered by the College of Science and Engineering or the College of Business and Administration.

Engineering Physics

Engineering physics is an interdisciplinary program offered jointly by the Departments of Engineering and Physics and is administered by the Department of Engineering. The program contains a core of engineering science, mathematics, and physics courses. This prepares the student for conceptual design, research, and development work in industry or for graduate work in electrical engineering, mechanical engineering, nuclear engineering, aerospace engineering, physics, or a combination of these.

The engineering physics program differs from the systems engineering program in that while much of the subject matter is the same, some of it is taught in the physics department where it receives more generalized and theoretical treatment. For engineering physics majors, a technical elective is defined as any course numbered 200 or higher that is offered by either the College of Science and Engineering or the College of Business and Administration except EC 201, 202, 203, and EGR 405.

The order in which engineering and technical courses are taken is very important. Because of this and the various options open to the student, a program guide should be obtained from the engineering office and one of the engineering physics advisers consulted for curriculum planning. A student's total hours may vary from the hours shown because of elective course choices.

Degree Requirements—Engineering Physics
Bachelor of Science in Engineering Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 55.5-57.5
EGR 121, 141, 142 9.5
EGR 212, 231 5
EGR 315, 320, 321, 322, 341 19-20
(EGR 421, 425, 426, 490, 491 22-23
(Nine hours of PHY 494 may be substituted for EGR 490 and 491)

Physics Requirements 46-48
PHY 200, 201, 202, 240, 241, 242, 243, 260 21
PHY 316, 371, 372 9
PHY 450, 451, 452, 460, 461 16-18
(A student may select either PHY 460, 461 or PHY 300, 301)

Related Course Requirements 44
CHM 121, 122 10
CS 210 3
MTH 132, 133, 231, 232, 233, 253, 333 31

Technical Electives 19
Must include three of the following courses:
EGR 317, EGR 318, EGR 441, PHY 322

Total  199.5-203.5

Human Factors Engineering

The program in human factors engineering is a combination of systems engineering and experimental psychology. It is designed for serious students who are interested in people and are willing to understand complex technology.

Graduates of the program find employment in research, design, or other engineering activities. They will also be prepared for graduate study in engineering, psychology, or human factors engineering.
Degree Requirements—Human Factors Engineering

Bachelor of Science in Engineering Degree

General Education Requirements 20
Waive Area Two
Reduce Area Three to twelve hours in Group B

Departmental Requirements 59
EGR 121, 141, 142 9.5
EGR 212, 213 8
EGR 306, 315, 320, 321, 322 19.5
EGR 405, 426, 471, 472 22

Psychology Requirements 45
PSY 111, 112 8
PSY 304, 307, 315, 321, 371, 373 25
PSY 415, 465, 471 12

Related Course Requirements 74
BIO 111, 112, 113 12
CHM 121, 122 10
CS 210 3
MTH 132, 133, 164, 231, 232, 233, 253, 265 34
PHY 200, 201, 202, 240, 241, 242 15

Technical Elective* 3

Total 201

*Any course numbered 200 or above offered by the College of Science and Engineering.

Materials Science and Engineering

Materials science and engineering encompasses a broad range of engineering activities. The development of new materials, such as advanced composites for aircraft, and the correct use of common materials, such as steel and plastic, illustrate this diversity. Processing, testing, product design, manufacturing, and research are frequent responsibilities of the materials engineer.

Materials science and engineering has evolved over the last fifteen years from metallurgical engineering, polymer chemistry, and ceramic science. As more new materials are developed, the interrelation of materials disciplines has become apparent and important.

The Wright State materials program provides a broad background in the fundamentals of materials science in addition to careful instruction in engineering skills necessary to develop and use materials. The emphasis is on structural materials for advanced technology and product applications, highlighted by an emphasis on materials processing.

The program is fully accredited by the Accreditation Board for Engineering and Technology (ABET).

Because the order in which technical courses are taken is very important, and because a selection of materials-related course sequences is available, the student should contact a materials science and engineering adviser in the engineering department at the earliest possible time. The curriculum for the degree in materials science and engineering is outlined below.

Degree Requirements—Materials Science and Engineering

Bachelor of Science in Engineering Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 69.5
EGR 121, 141, 142 9.5
EGR 212, 213 8
EGR 313, 315, 370, 375, 376, 385, 386 22
EGR 477, 479, 481, 483, 492, (eight hours) 22
EGR 485, 486, 487, 489 (select any two) 8

Related Course Requirements 61
CHM 121, 122, 361, 465, 467 18
CS 210 3
MTH 132, 133, 231, 232, 233 25
PHY 240/200, 241/201, 242/202 15

Advanced Materials-Related Electives 23
Courses to be selected from an approved list

Advanced Electives 11

Total 199.5

Biomedical Engineering

Biomedical engineering involves the application of engineering principles and techniques to solve biomedical problems. Current efforts in biomedical engineering include (1) the development of medical and surgical measuring instruments, (2) the design of prosthetic devices and materials, and (3) the adaptation of computer technology to serve the health care industry. Two separate curricula are available leading to the Bachelor of Science degree.

General Option

The general option in biomedical engineering prepares the graduate for employment in hospitals or in the biomedical engineering industry. Graduates are also well prepared to pursue graduate training in biomedical engineering or in a traditional engineering area.
Premedical/Predental Option

The premedical/predental curriculum satisfies admission requirements for medical or dental schools. Biomedical engineering graduates as a group currently have the highest rate of acceptance to medical schools, when undergraduates are classified by major. * Graduates are also well prepared to pursue graduate training in engineering or in the life sciences.

*Table 1-B from the A.A.M.C. 1979-1980 Catalog.

Degree Requirements—Biomedical Engineering

Bachelor of Science in Engineering Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 62.5
EGR 141, 142 7
EGR 212, 213 8
EGR 315, 320, 321, 322, 341 20
EGR 422, 425, 426, 428, 441, 461, 463 27.5
Related Course Requirements 75
CHM 121, 122 10
CS 210 3
BIO 111, 112, 113 12
MTH 132, 133, 231, 232, 233 25
PHY 240/200, 241/201, 242/202 15
PHS 218, 219 10
General Option 26
Technical electives* 26
Premedical/Predental Option 26
CHM 141 5
CHM 211, 212, 213, 215, 216, 217 18
Technical elective 3
Total 198.5

*At least fifty percent of these hours must be engineering electives, the remainder may be courses numbered 200 or above (except EC 201, 202, 203) offered by the College of Science and Engineering or by the College of Business and Administration. Concentration in an electrical or mechanical area is strongly recommended.

Computer Engineering

The program in computer engineering is offered jointly by the Departments of Computer Science and Engineering. For degree requirements, see Computer Engineering.

Environmental Studies

Director Timothy S. Wood

The interdisciplinary Environmental Studies Program allows students in the College of Science and Engineering to pursue a dual major program. The primary major (e.g., chemistry, geology) trains the student in the requisite skills for that area; the environmental studies component encourages an interdisciplinary perspective with respect to the environment. This shared experience will allow students who pursue careers from their respective disciplines to have resources concerning environmental problems available to them. The final degree is either a Bachelor of Science or Bachelor of Arts, depending on the specific requirements met.

The dual major program in environmental studies seeks to provide better informed persons in a variety of vocations. It will provide for a wider range of informed citizens who will be equipped to make considered value judgments and to use the available legal and political channels in functioning as environmentally responsible citizens. Individual programs are designed with the approval of an academic adviser and the academic coordinator for environmental studies. Students are required to take a core of courses emphasizing the scientific, social, and humanistic aspects of environmental problems. The internship program provides an opportunity for pursuing individual interests.

Dual Major Degree Requirements

In addition to fulfilling degree requirements of the primary major department, students must fulfill certain requirements for environmental studies. It should be noted that in most cases the dual major program will require no more total hours than would be required for a single-major degree program. The following courses are required for the dual major in environmental studies.

Dual Major Requirements in Environmental Studies

Core Curriculum 18

Six courses selected from the 100- and 200-level offerings of environmental studies

Engineering Geology Option

The program in engineering geology is offered jointly by the Departments of Engineering and Geological Sciences. For degree requirements, see Geological Sciences.
## Sample Dual Major Curriculum

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements</td>
<td>35</td>
</tr>
<tr>
<td>Waive Area Two</td>
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<tr>
<td>Departmental Requirements</td>
<td>57.5</td>
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<tr>
<td>Related Course Requirements</td>
<td>47</td>
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<tr>
<td>Environmental Studies Core</td>
<td>18</td>
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<td>Related Environmental Courses</td>
<td>22</td>
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<tr>
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<td>5</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>184.5</strong></td>
</tr>
</tbody>
</table>

Students are encouraged to take the lower level environmental studies courses during their freshman and sophomore years. ENV 411, 413, and 499 should be reserved for the junior or senior years.

## Geological Sciences

**Professors** Gregor, Pushkar, Richard, Schmidt (chair), Toman  
**Associate Professors** Ausich, Kramer, Kulander, Wolfe  
**Assistant Professors** Bakr, Strickland (WOBC)

The Department of Geological Sciences offers degree programs leading to the Bachelor of Science and Bachelor of Arts degrees with a major in geological sciences. Both programs are designed to include geology and related sciences and to prepare students for graduate study or professional employment. The Bachelor of Arts program is intended to be more flexible and to permit students with either broad or specialized interests to fulfill their program needs. The Bachelor of Science program is more highly structured and, through the various options offered, is intended to prepare students for rather specific professional or technical objectives. The Bachelor of Arts program with intended flexibility readily permits interdisciplinary programs such as the dual major, in which a student may major in two quite different fields simultaneously. Prospective geological sciences majors will remain in the University Division for administrative purposes until completion of GL 151 and 152 (or 101 and 102 or 111 and 112) and MTH 130, but interested students should contact the department chair as early as possible so they can be assigned a provisional departmental adviser pending formal admission to the program of their choice. A 2.0 GPA is required for admission into any geological sciences program of study.

The department has modern equipment for use in teaching and individual student investigations. Comparison and research collections in both palaeontology and mineralogy are maintained.

Field geology is taught at the Wright State Geological Field Station in Tennessee, near Smoky Mountain National Park. The station is adjacent to the western end of the Smoky Mountains and field areas in several different geologic and physiographic provinces are readily accessible. Field trips are taken to mines and related geologic areas in eastern Tennessee and western North Carolina.

The department seeks to offer a broad spectrum of educational options within a framework of sound academic guidelines, because personal objectives, interests, and aptitudes vary considerably with each individual. A student majoring in geology has considerable choice in basic program, options, and elective courses. The student should be aware of these choices as early as possible, and because course sequencing, particularly in Bachelor of Science options, is a critical factor, each student is strongly urged to consult his or her adviser to develop an individual program.

Supporting electives are courses in science and engineering (exclusive of geology and psychology) that are not normal preparation or prerequisites for required courses.

Minor modifications in departmental programs will be made from time to time and it is the responsibility of the student to confer with his or her adviser periodically during the academic year, preferably once each quarter before the registration period.

### Geological Sciences Honors Program

Candidates for the B.A. or B.S. degree in geological sciences who have a cumulative average of 3.0 or better may apply at the end of their junior year for admission to the departmental honors program. Requirements for graduation with honors in geological sciences are a cumulative average of 3.0 or better and satisfactory completion of a senior thesis under the guidance of a member of the faculty.*

Applications should be made in writing to the Undergraduate Studies Committee, Department of
Geological Sciences, and should include the following:

1. Name of student.
2. Expected date of graduation (which must be at least three full quarters, not including summer quarter, after the date of the application).
3. A summary proposal (of about a hundred words) for a senior thesis topic.
4. The endorsement of the student's departmental adviser, and that of the senior thesis adviser as well if not the same.
5. Candidates will be encouraged to attend at least one interdisciplinary honors seminar.

*The senior thesis is to be represented by a total of between six and nine credits in GL 499 taken as a portion of the prescribed block of geology and related electives in the case of the B.S. degree or of geology electives in the case of the B.A. degree. It shall be judged only as satisfactory or unsatisfactory, without being awarded a letter grade. The topic may be chosen from any branch of geological sciences; current course listings in this catalog may be taken as a rough indication of the range available. Broad latitude will be allowed in the study methods adopted: field work, experiments, theoretical studies, and literature study are all considered viable, either singly or in combination. The candidate’s thesis adviser will normally judge the completed thesis, but may elect to co-opt other members of the faculty for assistance, either within the department or outside.

**Degree Requirements—Geological Sciences/Engineering Geology Option**

**Bachelor of Science Degree**

The Department of Geological Sciences, in cooperation with the Department of Engineering, offers a comprehensive program leading to a Bachelor of Science degree with an engineering geology option.

<table>
<thead>
<tr>
<th>General Education Requirements</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waive Area Two</td>
<td></td>
</tr>
<tr>
<td>Departmental Requirements</td>
<td>78</td>
</tr>
<tr>
<td>GL 151, 152, 154, 155, 203, 301, 311</td>
<td>23</td>
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<tr>
<td>GL 330, 333, 410, 412, 428, 434</td>
<td>31.5</td>
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<tr>
<td>Geology electives</td>
<td>23.5</td>
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<tr>
<td>Related Course Requirements</td>
<td>69.5-71</td>
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<tr>
<td>CHM 121, 122, 141</td>
<td>13.5</td>
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<tr>
<td>CS 210</td>
<td>3</td>
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<td>PHY 240, 241, 242 (labs required)</td>
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<td>Electives</td>
<td>24.5</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
</tr>
</tbody>
</table>

The following courses are suggested for the freshman year: ENG 111, 112; GL 151, 152, 154, 155, 203; CHM 121, 122, 141. Following the freshman year, the departmental adviser should be consulted for program planning.

**Degree Requirements—Geological Sciences/Geophysics Option**

**Bachelor of Science Degree**

The Department of Geological Sciences, in cooperation with the Department of Physics, offers a Bachelor of Science degree in geology with a geophysics option. This program prepares the student to assume a career in this field or to pursue graduate study in geophysics.

| MTH 132, 133 and one course from MTH 231, STT 265, 360, 466 | 13-15 |
| Supporting electives from College of Science and Engineering | 25 |
| Electives                                                   | 20 |
| Total                                                       | 202.5-204.5 |

The following courses are suggested for the freshman year: ENG 111, 112; GL 151, 152, 154, 155, 203; CHM 121, 122, 141. Following the freshman year, the departmental adviser should be consulted for program planning.
General Education Requirements 35
Waive Area Two

Departmental Requirements 110.5
GL 151, 152, 154, 155, 203 12.5
GL 301, 311, 333, 434, 410 30
GL 412, 422, 423, 424, 426, 428 21
CS 210 3
PHY 240, 241, 242 (labs required), 243, 260 21
Geology or physics electives 26

Related Course Requirements 38.5
CHM 121, 122, 141 13.5
MTH 132, 133, 231, 232, 233 25
Electives 19

Total 203

The recommended sequence is as follows:

Freshman Year
ENG 111, 112; GL 151, 152, 154, 155, 203; CHM 121, 122, 141; MTH 132, 133, 231

Sophomore Year
PHY 240, 241, 242, GL 301, 311, 412; MTH 232, 233; General Education courses

Junior Year
CS 210; PHY 260, 243; GL 312, 333, 434

Senior Year
GL 422, 423, 424, 426; geology electives; physics or mathematics electives; General Education courses

Degree Requirements—Geological Sciences

Bachelor of Arts Degree
The Bachelor of Arts curriculum is designed for students who desire scientific training, especially through interdisciplinary programs. Because of its broader and more flexible approach, students who elect to follow a Bachelor of Arts program must demonstrate specific educational objectives that can reasonably be attained through this program.

General Education Requirements 35
Waive Area Two

Departmental Requirements 57.5
GL 151, 152, 154, 155, 203, or equivalent 12.5
GL 311, 330, 333, 428, 434 25.5
Geology electives 22.5

Related Course Requirements 45.5-47
BIO 111, 112, 113 or PHY 111, 112, 113 or CHM 121, 122, 141 12-13.5
Supporting electives 25
Mathematics 10
Electives 45

Total 185.5-187

Degree Requirements—Geological Sciences/Groundwater Technology Option

Bachelor of Arts Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 66
GL 151, 152, 153, 154, 201, 203 32.9, 311, 333, 365, 421, 428, 429, 434, 451, 499 57
Geological electives 8

Related Course Requirements 80
ACC 201, 202, 203 9
ADM 105 3
CHM 101, 102 9
CS 141 4
EC 201, 202 6
EGR 121, 141, 251 9.5
FIN 301, 302 6
MGT 200 3
MTH 131, 132, or 164, 165 11
QBA 201 3
Skills Requirement* 16.5
Electives 25

Total 205

*This requirement is intended either to broaden or to deepen existing or newly-gained skills, e.g., data processing in addition to CS 141, technical writing in addition to ENG 111, 112, or more engineering drawing and/or welding or equipment repair. This area also includes a minimum of ten weeks of internship practice with an industry contractor or government agency in an approved, supervised practical activity.

Mathematics and Statistics

Professors Fricke, Gorowara, Park, Rutter (chair), Sachs, Schaefer, Silverman

Research Professor Harter

Associate Professors Coppage, Dombrowski, Haber, Lewkowicz, L. Low, M. Low, Maneri, Mazumdar, McKee, Meike, Ratnaparkhi

Assistant Professors A. Evans, Hawley (WOB), Khamis, Mann, Mercer, D. Miller, Perkel, Rite (WOB), Ryan, Smith, Turyn, Vance

Instructors M. Miller, Tanner

The Department of Mathematics and Statistics offers programs leading to the Bachelor of Arts, Bachelor of Science, and Master of Science degrees. The Bachelor of Science candidate may select a concentration in pure mathematics, applied mathematics, statistics, or computing. The Bachelor of Arts program provides a broad, nontechnical background in mathematics.
The College of Education and Human Services offers a Bachelor of Science in Education degree with a major in mathematics. The Department of Mathematics and Statistics also participates in the dual major program. For example, dual majors are available with computer science and engineering.

A cooperative education program is available which allows students to alternate quarters of work and study during their junior and senior years. Interested students should contact the department chair for further details.

A mathematics major must complete one of the following programs. Each program indicates General Education requirements, departmental requirements, related course requirements, and general electives. The departmental component includes required courses and electives in mathematics and statistics; the ordering of these courses and the selection of electives should be discussed with the adviser. The student must achieve at least a 2.0 average in mathematics and statistics courses numbered 300 or higher. The general electives may be taken outside the Department of Mathematics and Statistics. All courses intended to satisfy the requirements of the program must be approved by the adviser.

More detailed information is available from the Department of Mathematics and Statistics.

Mathematics and Statistics Honors Program

Students who have completed two courses from among MTH 431, 451, 457 and STT 462 with a grade of A may undertake an honors program with the guidance and approval of a member of the department. Students who do not meet this requirement may petition the department for permission to pursue a mathematics honors program. Further information is available from the departmental office.

Degree Requirements—Mathematics/Pure Mathematics Concentration
Bachelor of Science Degree

General Education Requirements 35
Waive Area Two
Recommended courses: PHL 123, 323, 423

Departmental Requirements 69

Required Courses
MTH 132, 133, 231, 232, 233, 355, 431, 432, 433, 451, 452

Recommended Courses
MTH 280, 434, 435

Elective Courses
STT 360, 361, 396, 401, 461, 462, 486, 496
Any 700-level MTH or STT course with approval of graduate division

Related Course Requirements 23
CS 141, 142
PHY 240, 241, 242 (labs required)

Electives 56
Foreign language study recommended

Total 183

Degree Requirements—Mathematics/Computing Concentration
Bachelor of Science Degree

General Education Requirements 47

Physics is recommended for the natural sciences requirement, and, if chosen, one of the following programs must be followed:
PHY 111 (101), 112 (102), 113 (103), 210
PHY 240 (200), 241 (201), 242 (202)

Departmental Requirements 61

Required Courses
STT 461-462*

Recommended Courses
MTH 410, 458

Elective Courses
STT 401, 466, 467
Electives chosen to complete the departmental requirements must include two 400-level MTH courses.

Related Course Requirements 28
CS 141, 142, 146, 400
At least three from:
CEG 320, 430, 431; CS 405, 433, 466, 470, 480; MTH 476, 477
(CEG 320, 430 are recommended)

Electives 47

Total 183

*STT 461-462 may be replaced by STT 466-467 if at least four other 400-level courses (which may include STT 461) are chosen as electives.
Degree Requirements—Mathematics/Statistics Concentration

Bachelor of Science Degree

General Education Requirements 47

If physics is chosen for the natural science requirement, one of the following programs must be followed:

- PHY 111(101), 112(102), 113(103), 210
- PHY 240(200), 241(201), 242(202)

Departmental Requirements 60

Required Courses
- MTH 132, 133, 231, 232, 355
- STT 461, 462, 466, 467

Elective Courses
- STT course numbered above 363
- CS 470; EGR 433

Electives selected to complete the departmental requirements must include one STT course numbered above 363 and two 400-level courses.

Recommended Electives
- MTH 233, 316, 317, 407, 431, 432

Related Course Requirements 28
- CS 141, 142

At least twenty hours, chosen in consultation with an adviser, in any area in which statistical techniques can be applied. (QBA 201, 202 cannot be used.)

Electives 48

Total 183

Degree Requirements—Mathematics/Applied Mathematics Concentration

Bachelor of Science Degree

General Education Requirements 35

Waive Area Two

Departmental Requirements 65

- MTH 132, 133, 231, 232, 333, 355
- MTH 431, 432, 433

At least two of the following three pairs: MTH 316, 317; MTH 332, 333; STT 461, 462

At least twelve additional hours of MTH/STT electives from the following (or other approved courses with adviser’s approval): MTH 306, 407, 434, 435, 457, 480, 481, 482; STT 461, 462

Mathematics and Statistics/Science and Engineering 123

Related Course Requirements 41

- PHY 240(200), 241(201), 242(202)
- Either PHY 371, 372 or EGR 212, 213 (but not both)
- CS 141, 142

At least twelve hours of technical electives chosen from approved list in consultation with adviser

Electives 42

Total 183

Degree Requirements—Mathematics

Bachelor of Arts Degree

General Education Requirements 47

Departmental Requirements 56

Required Courses
- MTH 132, 133, 231, 232, 280
- 355, 431, 440, 451, 471
- STT 360 or 461

One of the following four sequences:
- MTH 431, 432; MTH 434, 435, MTH 451, 452
- MTH 461, 462

Recommended Courses
- MTH 441, 442 (for certification students)

Elective Courses
- STT 360, 361, 401, 461, 462, 466, 467

Related Course Requirements 38
- CS 141, 142

Twenty-seven hours (at least eight hours in one department) taken outside the College of Science and Engineering. One additional course within the College of Science and Engineering, outside the Department of Mathematics and Statistics. These courses may not be counted toward the General Education requirements.

Electives 42

Foreign language study is recommended

Total 183

Dual Major Degree Requirements

A dual major is available with computer science, combining the requirements of the mathematics computing concentration and the Bachelor of Science in computer science program. A dual major is available with engineering, combining the requirements of the electrical or mechanical option of the systems engineering program with the dual major requirements for a Bachelor of Science in mathematics.

Dual major programs are also available for students with other interdisciplinary interests.
Basic requirements follow and must be integrated with a corresponding program from another participating department. All programs require a minimum of 183 credit hours.

**Bachelor of Science Degree**

**General Education Requirements** 47

If physics is chosen for the natural science requirement, one of the following programs must be followed:

- PHY 111(101), 112(102), 113(103), 210
- PHY 240(200), 241(201), 242(202)

**Departmental Requirements** 53

**Required Courses**

- MTH 132, 133, 231, 232, 233, 355
- STT 360 or 461 or 466

At least four of the following:


Additional electives to complete the departmental requirement must be chosen, in consultation with an adviser, from the 300- and 400-level courses.

**Related Course Requirements** 8

- CS 141, 142

**Bachelor of Arts Degree**

**General Education Requirements** 47

**Departmental Requirements** 53

**Required Courses**

- STT 360 or 461 or 466

Nine hours of electives, 300-level or above, chosen in consultation with an adviser

**Related Course Requirements** 8

- CS 141, 142

**Microbiology and Immunology**

**Professors** Bigley (chair), Suriano

**Voluntary Professor** Funkhouser

**Associate Professors** Giron, McFarland, Smith, Thomas

**Assistant Professors** Burt, Jagger, Warren

**Lecturer** Hoffman

The Department of Microbiology and Immunology offers introductory courses in microbiology and immunology as well as a number of advanced courses. The introductory microbiology course is intended for health science majors, except for medical technologists. The advanced courses provide an area of concentration for life science majors. The course offerings encompass concepts of diagnostic microbiology, virology, and immunology as well as the principles of immunology, immunobiology, virology, bacteriology, and medical mycology; the biology of host-parasite interactions and the structure-function relationship unique to microorganisms are emphasized. A major in biological sciences with concentration in the area of microbiology and immunology prepares the student for graduate study in these areas or for further training as a diagnostic or research laboratory technologist.

Students who enroll in courses at the 400-level should have completed the biological sciences sequence through BIO 402 as well as CHM 211, 212, 213, and 312. BCH 421, 433, 423 or equivalent are recommended as preparation.

**Physics**

**Professors** Hanson, Martin (chair), Simpson

**Associate Professors** Andrews, Hemsky, Ling, Listerman, Wolfe, Wood

**Assistant Professor** Bambakidis

The Department of Physics offers a program leading to a Bachelor of Science degree with a major in physics. The Department of Physics and the Department of Engineering jointly offer a program leading to the Bachelor of Science in engineering physics; see Engineering. Students in secondary education may major in physics and earn the Bachelor of Science in Education degree awarded by the College of Education and Human Services; see Physics Education.

Minimum requirements for a Bachelor of Science degree with a major in physics include successful completion of the required courses, as well as the completion of university and college degree requirements.

In addition to the required courses, it is recommended that every physics major take the following courses: PHY 421, 430 (or EGR 405), 442; BIO 111, 112, 113. The physics major planning graduate study is also strongly urged to take the following courses: PHY 480, 481, 482; one to two years of a foreign language, either French, German, or Russian; and additional mathematics courses.

**Physics Honors Program**

The Department of Physics has an honors program designed to provide the superior student with a program of greater creativity and intellectual challenge. Students wishing to participate in this program must apply to the department during the spring quarter preceding their participation in the honors program. To participate, students should have at least a 3.0 grade point average overall and at least a 3.0 in physics courses numbered 300 and
above. To graduate with honors in physics, completion of PHY 480, 481, 482 and nine hours of honors research (499), with grades of B or better, is required.

Degree Requirements—Physics
Bachelor of Science Degree

General Education Requirements 35
Waive Area Two

Departmental Requirements 61
PHY 240, 241, 242, 243, and PHY 200, 201, 202; or equivalent 17
PHY 260, 371, 372 10
PHY 315, 316, 322 10
PHY 450, 451, 452, 420, 460, 461, 462 24

Related Course Requirements 52
MTH 132, 133, 231, 232, 233, 253 28
MTH 332, 333 6
CHM 121, 122, 141 (or 361) 15
CS 210 or equivalent 3
Electives 47
Total 195

Since the order in which courses are taken is important, students should adhere closely to the following suggested program for the required courses.

Freshman Year
PHY 240, 241, 242, 200, 201, 202; MTH 132, 133, 231; ENG 111, 112

Sophomore Year
PHY 243, 260, 371, 372, 315, 316; CS 210, MTH 232, 233, 253; CHM 121, 122, 141

Junior Year
PHY 322, 420, 450, 451, 452; MTH 333, 332

Senior Year
PHY 460, 461, 462

The results of the mathematics placement examination will be used to determine the proper initial mathematics course; see mathematics course descriptions. If a student does not have a strong science and mathematics background, the student might choose to delay PHY 240, 241, 242 until the sophomore year. These schedules would require some adjustment of the junior and senior year curricula. An adviser should be consulted as soon as possible to arrange a suitable program.

The Department of Physics encourages students with interdisciplinary interests to pursue a dual major in physics and a related discipline. A departmental adviser will help each student arrange a suitable program of study. In addition, there are two formal physics degree option programs which are outlined below. The department has model programs for each option which are available on request.

Degree Requirements—Physics/Geophysics Option

Bachelor of Science Degree
The Department of Physics in cooperation with the Department of Geological Sciences offers a program leading to a Bachelor of Science in physics with a geophysics option. This option is designed for students who plan a career in physics in a geology-related setting or who plan to pursue graduate study in geophysics.

 Students following the physics program with the geophysics option must meet the requirements of the basic physics degree program. In addition, the following courses are required.

Geophysics Option Requirements 38
GL 151, 152; or GL 101, 102 6
GL 154, 155 2
PHY 430; or EGR 405 4
PHY 422, 423, 424 11
Electives chosen from: GL 301, 311, 333, 410, 412, 417, 451 15

In addition to these required courses, it is recommended that students pursuing the geophysics option also take GL 434 and participate in the geophysics seminars.

Degree Requirements—Physics/Computing Option

Bachelor of Science Degree
The Department of Physics offers a program leading to a Bachelor of Science degree in physics with a computing option. This option is designed for students who plan a career in any of the many areas of theoretical or experimental physics which involve extensive use of digital computers.

Students following the physics program with the computing option must meet the requirements of the basic physics degree program. In addition, the following courses are required.

Computing Option Requirements 24
CS 141 (or CS 210), 142 8
CS 146 4
CS 400 4
CS 316, 317 8

Students wishing to learn about microprocessors may wish to take further courses in computer engineering, such as CEG 260, 320, and 360. For such students, CEG 430 and 431 may be taken in place of CS 316 and 317.

Degree Requirements—Physics/Biology Option

Bachelor of Science Degree
The Department of Physics in cooperation with the Department of Biological Sciences offers a program leading to a Bachelor of Science degree
in physics with a biology option. This option is designed for students who plan a physics career in a biology-related setting or who want to pursue graduate study in biophysics.

Students following the physics program with the biology option must meet the requirements of the basic physics degree program. In addition, the following courses are required.

**Biology Option Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 111, 112, 114</td>
<td>12</td>
</tr>
<tr>
<td>PHY 430</td>
<td>4</td>
</tr>
<tr>
<td>BIO 492 (biophysics emphasis)</td>
<td>1</td>
</tr>
<tr>
<td>CHM 211, 212</td>
<td>12</td>
</tr>
<tr>
<td>Electives chosen from BIO 307, 402, 306, 202; BCH 421, 422</td>
<td>10</td>
</tr>
</tbody>
</table>

**Physiology**

*Professors* Arlian, Glaser, Johnson, Kolmen (chair), Petrofsky

*Adjunct Professor* Bajpai

*Associate Professors* Gotshall, Nussbaum, Phillips, Sernka

*Voluntary Associate Professor* Frey

*Assistant Professors* Mechlin, Miles, Mullins

*Voluntary Assistant Professor* Barr

*Instructor* Weisman

The Department of Physiology provides a curriculum serving the needs of students who are planning to enter into medicine, nursing, or other health-related professions. Although the department does not offer a degree in physiology, a student may develop a heavy concentration in physiology as part of the Bachelor of Science degree in biological sciences. The Department of Physiology will advise students desiring a concentration in this medically-oriented discipline.

**Psychology**

*Professors* Crampton, S. J. Klein, Mitchell, Wilson

*Associate Professors* Campbell, Colle, Davis, H. Klein, Kruger, Kurdek, Moss (chair), Page, Ward

*Assistant Professors* Eggemeier, Powell

*Instructor* Wagar (WOBC)

The Department of Psychology offers programs leading to the Bachelor of Science and the Bachelor of Arts degrees. Both degree programs are designed to give the student a broad introduction to contemporary psychology. The Bachelor of Arts curriculum permits the greatest flexibility in selecting electives within and outside of psychology. The Bachelor of Science program is recommended for students planning careers in academic, research, or professional fields.

The Bachelor of Arts program may also be suitable for these goals; requirements for graduate schools vary considerably. Programs should be supplemented with additional courses which are selected to meet individual goals. Students should obtain a copy of the booklet, *Preparation for Graduate Study*, from the psychology department and consult with their departmental advisers.

Graduate schools expect applicants to have a background in introductory or general psychology, experimental psychology with laboratory, and statistics. Beyond these courses, there are few specific requirements. Students planning to apply to graduate schools should seek a broad background in psychology rather than highly specialized undergraduate training. A basic curriculum should include courses in introductory psychology, statistics and experimental design, laboratory courses, survey courses in the major content areas, and a few advanced electives.

The following courses are suggested for the freshman year: PSY 111, 112; BIO 111, 112, 114; MTH 127 or 129; ENG 111, 112, and selected courses from General Education Area Three. Following the freshman year, students are advised to obtain supplementary materials from the department and to work closely with their assigned advisers. Credit hours in psychology may not be less than sixty-five for a Bachelor of Arts and seventy-three for a Bachelor of Science degree.

**Psychology Honors Program**

Application for admission to the program should be made before the beginning of the senior year. Students usually apply at the end of the sophomore year. After acceptance, students enroll in one departmental honors seminar each academic year. Part-time students must complete one honors seminar prior to graduation. Each student must complete an honors thesis, for which academic credit is granted.

**Degree Requirements—Psychology/Academic Concentration**

**Bachelor of Arts Degree**

**General Education Requirements** 47

**Departmental Requirements** 55

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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</thead>
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<td>PSY 111, 112</td>
<td>8</td>
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<tr>
<td>PSY 315</td>
<td>5</td>
</tr>
<tr>
<td>Four of the following (at least one from each group):</td>
<td>16</td>
</tr>
<tr>
<td>PSY 305, 331, 341, 351</td>
<td></td>
</tr>
<tr>
<td>PSY 321, 361, 371, 391</td>
<td></td>
</tr>
<tr>
<td>Sixteen hours of 400-level electives in psychology</td>
<td>16</td>
</tr>
<tr>
<td>Electives in psychology</td>
<td>20</td>
</tr>
</tbody>
</table>
Related Course Requirements 9-10
STT 164, 265 6
One additional course in Science and Engineering outside psychology 3-4
Electives 61-62
Total (minimum requirement) 183

Degree Requirements—Psychology

Bachelor of Science Degree

General Education Requirements 47

Departmental Requirements 73
PSY 111, 112 8
PSY 315 and 415 9
Five of the following (at least two from each group): 20
PSY 305, 331, 341, 351
PSY 321, 361, 371, 391
Two courses from the following: 8
323, 333, 343, 353, 363, 373, 393
Sixteen hours of 400-level electives in psychology 16
Electives in psychology 12

Related Course Requirements 17
MTH 129, STT 164, 265 9
CS 141 4
CS 142 or PSY 416 4
Electives 46

Total (minimum requirement) 183

Human Factors Psychology Concentration

All requirements for the Bachelor of Science degree apply. Additional requirements can be met without exceeding the 183 hours required for graduation, if planning begins early. A complete description of this concentration can be obtained in the departmental office. Participation in this concentration is by application only.
Nursing
The nursing program, which leads to a Bachelor of Science in Nursing degree, is designed to suit students' individual needs. A complete program is offered for registered nurses seeking a B.S.N. An honors program is available for students with high academic ability.

The nursing program at Wright State is accredited by the National League for Nursing and is approved by the Ohio State Board of Nursing Education and Nurse Registration and the Ohio Board of Regents. Graduates of the program are eligible for the State Board Test Pool Examination.

Admission and Promotion

The baccalaureate program in nursing is an upper division major. Admission to Wright State does not automatically ensure admission to the School of Nursing.

Students are admitted to the School of Nursing on a competitive basis. The number of students accepted for admission is limited by the availability of resources for quality education. Admission forms are available in the university's Office of Admissions. Students must show proof of high school graduation or its equivalent and be admitted to Wright State University as a matriculant (degree-seeking) student to be considered for admission to the School of Nursing.

All entering students must receive a grade of C or better in anatomy, physiology, nutrition, biology, chemistry, pharmacology, microbiology, and pathophysiology to meet prerequisite requirements for the clinical nursing courses. Also, all students must have a cumulative grade point average of at least 2.5 to enter the School of Nursing.

Students are required to earn a grade of C or better in all nursing courses. Grades in these courses are based on the student's performance in both the classroom and in the clinical laboratory. A satisfactory grade in both classroom and clinical laboratory work must be achieved to pass the course. Students must maintain a 2.0 total cumulative point average to continue in nursing courses.

Admission Criteria

New Freshman Students

All new students interested in nursing, except RNs, will be admitted to the university as pre-nursing students and advised in the University Division until they meet the criteria for admission to the School of Nursing. These criteria are successful completion of ENG 111 and 112, PSY 111 and 112, SOC 111 and 112, CHM 101 and 102, BIO 112, MTH 102 (unless waived), ANT 201, COM 102, and a cumulative grade point average of 2.5 or higher.
Transfer Students
Transfer students must meet the same requirements as the new freshman student. If students do not have the necessary prerequisites, they will be admitted as prenursing students and advised in the University Division until they meet the requirements for admission into the School of Nursing. Transfer students with baccalaureate nursing credits from another accredited nursing program will have their nursing credits evaluated in the School of Nursing.

Students who are Registered Nurses
While RNs must meet the same requirements as new freshman and transfer students, they will be advised in the School of Nursing.

Health Certification, Transportation, and Insurance
All students must be certified by a physician to be of good health and capable of actively participating in clinical experiences before they enter clinical nursing courses. This certification must be repeated each year.

Students must provide their own transportation to all clinical facilities and all students in clinical nursing courses must carry liability insurance. Forms are available in the School of Nursing office.

Nursing

Honors Program
Students with high academic ability may participate in the honors program, which emphasizes independence, self-direction, and in-depth study in an area of interest to the student. Applications must be made on an honors program application form available in the School of Nursing office. To be eligible, the student must have a 3.2 or better GPA for the forty-five credit hours immediately preceding the winter quarter of the student's junior year. Final approval for participation is given by the Honors Committee of the School of Nursing.

Curriculum Requirements
In the following curriculum, it is essential that students take designated courses in sequence, especially the upper division nursing courses.

Freshman Year

First, Second, Third, and Fourth Quarters 55

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>4</td>
<td>CHM 101 or 121</td>
</tr>
<tr>
<td>ENG 112</td>
<td>4</td>
<td>CHM 102</td>
</tr>
<tr>
<td>SOC 111</td>
<td>4</td>
<td>BIO 112**</td>
</tr>
<tr>
<td>SOC 112</td>
<td>4</td>
<td>COM 102</td>
</tr>
<tr>
<td>PSY 111</td>
<td>4</td>
<td>ANT 201*</td>
</tr>
<tr>
<td>PSY 112</td>
<td>4</td>
<td>ANT 202*</td>
</tr>
<tr>
<td>MTH 102 or</td>
<td>4</td>
<td>Free elective</td>
</tr>
</tbody>
</table>
equivalent**  |        |                        |

Sophomore Year

Fifth, Sixth, and Seventh Quarters 54

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 305</td>
<td>4</td>
<td>PHS 218*</td>
</tr>
<tr>
<td>PSY 341</td>
<td>4</td>
<td>PHS 219*</td>
</tr>
<tr>
<td>SOC 360</td>
<td>4</td>
<td>PHS 403*</td>
</tr>
<tr>
<td>Anthropology</td>
<td>4</td>
<td>M&amp;I 220*</td>
</tr>
<tr>
<td>elective</td>
<td>4</td>
<td>NUR 205***</td>
</tr>
<tr>
<td>Religion</td>
<td>4</td>
<td>NUR 211*</td>
</tr>
<tr>
<td>Humanities</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BCH 250*</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Junior Year

Eighth, Ninth, and Tenth Quarters 42

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH 340*</td>
<td>4</td>
<td>NUR 304*</td>
</tr>
<tr>
<td>Political</td>
<td>4</td>
<td>NUR 311*</td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
<td>NUR 312*</td>
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<tr>
<td>elective</td>
<td>4</td>
<td>NUR 313*</td>
</tr>
<tr>
<td>Philosophy</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Senior Year

Eleventh, Twelfth, and Thirteenth Quarters 41

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free elective</td>
<td>4</td>
<td>NUR 411*</td>
</tr>
<tr>
<td>Humanities</td>
<td>4</td>
<td>NUR 412*</td>
</tr>
<tr>
<td>Philosophy</td>
<td>4</td>
<td>NUR 413*</td>
</tr>
<tr>
<td>electives</td>
<td>4</td>
<td>NUR 414 or 415*</td>
</tr>
</tbody>
</table>

*Sequential courses
**If this requirement is waived, the credit hours will be allocated to the free elective course area.
***Must be admitted to the School of Nursing

The School of Nursing reserves the right to change the course requirements or the sequence.

Degree Requirements

Bachelor of Science in Nursing Degree

General Education and Related Course Requirements 107-114

Supporting Courses 72-79

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 102 or equivalent</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIO 112 (if not waived)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHM 101 or 121, 102</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ANT 201, 202</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHS 218, 219, 403</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BCH 250 (Nutrition)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>M&amp;I 220</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BCH 340 (Pharmacology)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PSY 111, 112, 305, 341</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SOC 111, 112, 360</td>
<td>4</td>
<td></td>
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</tbody>
</table>

Humanities 35

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111, 112</td>
<td>4</td>
<td>Philosophy, religion, political science, anthropology electives, and electives as listed in Area Three, Group B of General Education requirements or approved by School of Nursing.</td>
</tr>
<tr>
<td>COM 102</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Philosophy, religion, political science, anthropology electives, and electives as listed in Area Three, Group B of General Education requirements or approved by School of Nursing.
Nursing Requirements
NUR 205, 211, 304, 311, 312, 313, 411, 412, 413, 414 or 415

Free Electives 8-15

Total 192

RN/BSN Completion Program
Wright State University offers a RN/BSN completion program for registered nurses. Of the 192 credits required for graduation, students will be required to enroll in a minimum of ninety quarter credit hours at Wright State. Approximately half of these credits will be in nursing courses, the other half will be in the humanities and advanced sciences.

A series of three nursing courses (fifteen credit hours) assists registered nurses in the transition to baccalaureate nursing education. These transition courses, designed to build on the competencies of registered nurses, are taken during the junior year and include concepts from the five parallel nursing courses taken by generic baccalaureate students. Upon entering their senior year, these registered nurses will enroll in the regular senior-level courses designed for all baccalaureate nursing students.

Associate degree graduates with a major in nursing may complete all the requirements for the Bachelor of Science in Nursing degree at Wright State University in two calendar years of full-time study. Diploma graduates without university credits will require a longer period of study to complete all credit hours necessary for graduation.

Philosophy
The School of Nursing supports Wright State University’s purposes of teaching, research, and service. The faculty believe in the acquisition of knowledge from the past and present, as well as exploration of new knowledge, in the advancement of lifelong learning, the search for basic truth, and in the commitment of the university to solution of problems affecting the larger community.

Human existence involves behavioral patterns, constant change, and interaction with biological, psychological, social, spiritual, and other forces in the environment. Although human existence contains elements of similarity, each person is the product of a unique genetic heritage in continuous and dynamic interaction with unique life experiences. Humanity is viewed in terms of ability to act and react in relation to a continuous process of change resulting in increasing complexity. Each individual functions within a set of values with the potential to be a thinking, creative, dignified, rational being. Society within the human environment is composed of individuals, families, groups, and communities sharing a variety of common goals and values which change as the interests and needs of the members change. Social change evolves through the mutuality of relationships and the interaction of political and social forces which affect the individual’s rights, responsibilities, and obligations. These dynamic forces determine the values and expectations placed upon the health care system as an integral part of society. The individual’s interaction with the health care system is a reciprocal experience.

Health is the dynamic pattern of functioning whereby there is continued interaction with internal and external forces in an attempt to achieve the goal of maximum health potential. Health is influenced by inherent capabilities, growth and development, culture, and totality of perception. Human dignity and the quality of life are influenced by the degree of vulnerability to health impairments and depletions. The availability of a variety of resources will influence health and serve to decrease vulnerability.

The practice of professional nursing is humanitarian in nature and requires a knowledge base in nursing. The integration of scientific, humanistic, and nursing concepts and theories, attainable through research, gives direction to this practice. The nursing process is interpersonal and caring in nature. In its totality, it includes assessment, diagnosis, planning, implementation, and evaluation, and is the essence of professional practice. The nursing process is utilized with individuals and groups to maximize their potential for health.

The emerging role of the nurse practitioner involves a greater amount of independence in practice and an increasing accountability to the consumer of health and nursing care. This can be achieved through individualized care given on a continuous basis over an extended period of time. The professional nurse will increasingly be viewed as the nucleus of the health care system, as well as an advocate for the consumer. Through leadership and interaction skills, the nurse will act in consortium with the client and other health and nursing practitioners for health promotion and maintenance.

The baccalaureate program in nursing prepares a self-directed practitioner with a breadth of knowledge in nursing who functions as a generalist in a variety of health care settings. This practitioner is capable of functioning as a leader and as an initiator of change in the care-giving situation, supporting change within the health care system; coordinating and collaborating with consumers and interdisciplinary health team members; utilizing selected theories, concepts, and research findings. Experiences are provided to help students define their role and develop personal and professional values and clinical
competencies. This baccalaureate program provides the base for master's preparation in nursing.

Graduate nursing education, based upon the first professional degree, the Bachelor of Science in Nursing, prepares the graduate for the advanced application of theory to professional practice. As a practice profession, nursing is based on the utilization of theories to describe the unique relationships among persons and their health status. Advanced practitioners of nursing are prepared to use analytical skills in applying theories to practice for a variety of roles and functions in specialized settings. Inquiries emerge from professional nursing practice which in turn form the essence of nursing research.

Learning is a dynamic, lifetime growth process of behavioral changes which involves the development of maximum potential through a spirit of inquiry and self-motivation. Learning is a sequential process and combines cognitive, affective, and psychomotor components. The learner has responsibility for independence, self-direction, and reaching a level of self-realization. The educator has responsibility for determining and implementing quality education which is accomplished through sharing, counseling, guiding, and challenging. The educator and learner in nursing must continually evolve a greater understanding of the relationships among theory, research, and practice. This understanding facilitates the development of nursing theory and practice, provides a climate conducive to intellectual pursuits, contributes productively toward highest standards of teaching, and encourages independent thought and creative endeavors.

Characteristics of the Graduate

The characteristics of the graduate are stated as broad, descriptive objectives to focus the philosophy's concepts of humanity, society, health, professional nursing, and learning. These objectives are viewed by the faculty as representative of a commitment to quality nursing care, to the student, and to the consumer of health care.

These objectives serve as essential guidelines to the faculty and students, especially in matters relating to the curriculum such as the development of level and course objectives. The graduate will be able to:

1. Assess and diagnose the health status of individuals, families, and communities; plan, implement, and evaluate nursing care in any setting within and outside the health care delivery system.

2. Synthesize theories and/or concepts related to the arts, sciences, and nursing into practice as a professional nurse.

3. Provide professional nursing care based on an understanding of the evolving patterns and a recognition of the uniqueness of clients in relation to their health status and potential.

4. Incorporate the interpersonal process to assist individuals, families, and communities to maximize their potential for health.

5. Function as the nucleus of the health care delivery systems utilizing leadership and interactive concepts and theories to coordinate and collaborate on matters related to the nursing care.

6. Accept a personal philosophy of professional nursing that incorporates professional responsibility and accountability to, and advocacy for, the consumer of nursing care.

7. Recognize the impact of environmental forces on the health care delivery system.

8. Utilize the change process to influence environmental forces toward improving health and nursing care as it relates to the emerging role of the professional nurse.

9. Demonstrate responsibility for self-direction in lifelong learning by participating in activities that contribute to personal and professional growth.

10. Utilize nursing research to improve practice and gather reliable and accurate data to extend nursing science.
Branch Campuses
Wright State University
Extension/Piqua

The Wright State University Extension/Piqua* was first established as the Piqua Academic Center to provide as broad an educational program as possible to residents of the Upper Miami Valley.

Wright State University Extension/Piqua is an integral and integrated unit of the university's educational system and offers courses in the late afternoon and evening as a service to the community. These courses are offered at the junior, senior, and graduate level to supplement and complement programs at the main and Western Ohio Branch campuses. The courses offered at the Wright State University Extension/Piqua also provide a transitional link between the area's two-year degree-granting colleges and other accredited programs and baccalaureate degree programs at Wright State University.

All courses at the Wright State University Extension/Piqua are taught by resident faculty, faculty from the main and WOBC campuses, or qualified adjunct instructors.

The Wright State University Extension/Piqua also provides preliminary academic counseling and supports the main and WOBC campuses in registration, admissions, fee collection, student services, Veterans Affairs, and other activities.

*The name of the extension was changed from the Piqua Academic Center to the Piqua Resident Credit Center in 1973. On July 1, 1982, the name was changed to Wright State University Extension/Piqua when the extension was moved from the Central High School building to quarters at Edison State Community College.

Western Ohio
Branch Campus

The Western Ohio Branch Campus (WOBC/WSU) became part of Wright State University in July 1969. Classes were held in downtown Celina until September 1972, when a new campus, located on the north shore of Grand Lake St. Marys between Celina and St. Marys, was opened. Dwyer Hall, the first building on the new campus, contains laboratories, classrooms, faculty and administrative offices, the library, an auditorium, and student service facilities.

Two new buildings were added in 1980. Andrews Hall contains an electronics lab, two secretarial and business labs, and the mechanical drafting design technology lab. Trenary Lab houses the manufacturing engineering technology lab as well as the automotive technology program.
The 173-acre campus and its facilities are the result of a state appropriation and the contributions of many individuals and groups in the surrounding communities who sought to provide opportunities for youth and adults in the area to pursue university work of high quality at a reasonable cost.

The location of the campus enables many students to obtain an associate degree or to earn approximately half their baccalaureate degree requirements without extensive commuting and to hold part-time jobs while in attendance. Students who do not plan to complete a degree program can further their education through selected courses of individual interest. Classes are scheduled during both day and evening hours.

The mission of the Western Ohio Branch Campus of Wright State University is to offer postsecondary education within a reasonable commuting distance to any interested student. Since its mission is to serve all types of students, WOBC offers prebaccalaureate and two-year technical programs as well as other selected credit and noncredit courses as needed.

A wide selection of courses covering the first two years is available in the humanities, the social sciences, the sciences, mathematics, education, and business. Selected courses at the junior, senior, and graduate levels are offered based upon demand, library resources, and the availability of qualified faculty. Noncredit courses are offered to the community at a nominal charge when there is sufficient demand and available space.

The Western Ohio Branch Campus has a highly qualified resident faculty of sufficient size to provide instructors for nearly all courses offered. Academic advising and counseling services are available at the branch campus.

The WOBC/WSU has its own student government which initiates, supports, and supervises extracurricular activities. The student government helps sponsor the College Community Arts Program which brings to the campus outstanding musical, dramatic, lecture, and film presentations. The basketball teams compete against other branch campuses and technical colleges in Ohio and junior colleges in Indiana.

### Associate of Arts Degree

The Western Ohio Branch Campus offers a two-year Associate of Arts degree program that introduces the student to the major disciplines of the humanities, the natural and social sciences, and mathematics. The program includes the university's General Education requirements. There is sufficient flexibility to permit students to tailor their programs to provide the background required for baccalaureate degree programs at Wright State University or for transfer to another college or university. Area concentrations are available in the humanities and social sciences, business and administration, community/rehabilitation services, and several areas of specialization in the sciences. Specific requirements for the Associate of Arts program are available from the branch campus office.

Students may choose to complete a foreign language or an optional research methods requirement. To satisfy the foreign language requirement, a student must demonstrate proficiency in a foreign language either by satisfactorily completing five quarters of course work or by examination at an equivalent level. To satisfy the research methods option, a student must fulfill the following requirements (Sections I and II must be completed at the branch campus):

<table>
<thead>
<tr>
<th>Section</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>STT 164/165 and STT 265/266</td>
</tr>
<tr>
<td>II</td>
<td>AIS 103 and CS 300 or CS 141 and 142 or CS 141 and CS 300</td>
</tr>
</tbody>
</table>

Section III To be completed during the last two years of study

Humanities and social science electives are to be chosen from the approved list of courses which fulfill General Education requirements.

### Requirements for the Associate of Arts Degree

#### Biological Sciences

**Freshman Year**

BIO 101, 102, 114; ENG 111, 112; MTH 130; CHM 121, 122, 141; social science and humanities electives

**Sophomore Year**

BIO 202, 206, elective; CHM 211, 212, 213, 215; communication elective; PHY 101, 102, 103, 111, 112, 113; humanities and social science electives

#### Business and Administration

**Freshman Year**

ACC 201, 202, 203; ADM 101; COM 203; ENG 111, 112, 330; lab science sequence; LCS 210; MTH 129, 224, 226; social science elective

**Sophomore Year**

AIS 103; TAD 232; CS 200; EC 201, 202, 203; TMG 201; TMK 201, 202, TQB 210; social science and humanities electives

#### Chemistry

**Freshman Year**

CHM 121, 122, 141; ENG 111, 112; MTH 132, 133, 231; foreign language; social science elective

**Sophomore Year**

CHM 211, 212, 213, 215, 216, 217; communication elective; PHY 101, 102, 103, 111, 112, 113; PSY 111, 112; foreign language; social science elective
Communication

Freshman Year
COM 101, 102, 203; ENG 111, 112; lab science sequence; elective; Language 101, 102, 103 or research methods

Sophomore Year
COM 111, 141, 233, 252; ENG 330; SOC 111, 112; electives; Language 201, 202 or research methods; social science elective

Community/Rehabilitation Services

Freshman Year
ENG 111, 112; MTH 127; PSY 111, 112, 341; RHB 201, 202; SOC 111, 112; lab science sequence

Sophomore Year
PSY 200, 351; RHB 213, 214, 223; SOC 320, 332; elective; humanities elective; COM 102

Economics

Freshman Year
ENG 111, 112; GEO 103; MTH 129, 224, 226; SOC 111, 112; Language 101, 102, 103 or AIS 103, CS 141, 142; humanities elective

Sophomore Year
ACC 201, 202, 203; EC 201, 202, 203; QBA 201, 202; Language 201, 202 or electives; lab science sequence; electives

English

Freshman Year
COM 101, 102; ENG 111, 112, 203; PSY 111; lab science sequence; Language 101, 102, 103 or research methods; social science elective

Sophomore Year
ENG 210, 211, 212, 255, 256, 497; HST 121, 122; Language 201, 202, elective or research methods; social science elective

Geography

Freshman Year
ENG 111, 112; GEO 101, 102, 103; GL 101, 102, 103; Language 101, 102, 103; elective

Sophomore Year
EC 201, 202, 203 or sociology sequence (three courses); GEO 285, 365, 370; Language 201, 202; electives

Geological Sciences

Freshman Year
ENG 111, 112; GL 101, 102, 103; MTH 132, 133; GEO 101, 322; elective; humanities elective; free elective

Sophomore Year
Communication elective; CHM 121, 122, 141; GL 203, 330, 331, or elective; PHY 101, 102, 103, 111, 112, 113; humanities and social science electives

History

Freshman Year
ENG 111, 112; HST 111, 112, elective; Language 101, 102, 103 or research methods; elective; lab science sequence

Sophomore Year
HST 121, 122; elective; SOC 111, 112; elective; GEO or EC electives; Language 201, 202 or research methods; free electives

Mathematics

Freshman Year
ENG 111, 112; MTH 132, 133, 231; PHY 101, 102, 103, 111, 112, 113; PSY 111; SOC 111; humanities electives

Sophomore Year
CS 141, 142; EC 201, 202, 203; MTH 232, 233, 280; communication and humanities electives; free electives

Psychology

Freshman Year
ENG 111, 112; MTH 129; PSY 111, 112; SOC 111, 112; STT 164, 165, 265, 266; lab science sequence

Sophomore Year
Communication elective; CS 141, 142; PSY 200, 341, 351, SOC 320, 332; humanities and social science electives

Social and Industrial Communication

Freshman Year
ATH 140; COM 101, 102, 203; ENG 111, 112; SOC 111, 112, 206; Language 101, 102, 103, or research methods

Sophomore Year
COM 141, 233; SOC 350, 442; lab science sequence; Language 201, 202, or research methods; TMG 201; social science electives
**Social Work**

**Freshman Year**
- ATH 140, 141; ENG 111, 112; RHB 201; SOC 111, 112; lab science sequence; Language 101, 102, 103, or research methods

**Sophomore Year**
- EC 201, 202, PSY 111, 112; SOC 332; SW 270, 280; Language 201, 202, or research methods; communication elective; humanities electives

**Sociology**

**Freshman Year**
- ENG 111, 112; PSY 111, 112; SOC 111, 112, 206; lab science sequence; Language 101, 102, 103, or research methods

**Sophomore Year**
- PSY 200, 341, 351; SOC 320, 332; Language 201, 202, or research methods; communication elective; social science elective; electives

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**Associate of Science Degree**

The Western Ohio Branch Campus offers a two-year Associate of Science degree program that prepares students to pursue a Bachelor of Science degree program in biology, chemistry, geology, ground water, mathematics, and psychology. Specific requirements for each program are available from the branch campus office. The program includes the university's General Education requirements. There is sufficient flexibility to permit students to tailor their programs to provide the background required for baccalaureate degree programs at Wright State or for transfer to another college or university. Humanities and social science electives are to be chosen from the approved list of courses which fulfill General Education requirements.

**Requirements for the Associate of Science Degree**

**Biological Sciences**

**Freshman Year**
- BIO 101, 102, 114; CHM 121, 122, 141; ENG 111, 112; MTH 132, 133, 231; social science elective

**Sophomore Year**
- BIO 202, 206, elective; CHM 211, 212, 213, 215, 216, 217; COM 141; PHY 101, 102, 103, 111, 112, 113; humanities elective

**Chemistry**

**Freshman Year**
- BIO 101, 102, 114*; CHM 121, 122, 141; ENG 111, 112; MTH 132, 133, 231; social science elective

**Sophomore Year**
- BIO 202*; CHM 211, 212, 213, 215, 216, 217; communication elective; PHY 101, 102, 103, 111, 112, 113; PSY 111, 112; humanities and social science electives

*These courses partially fulfill pre-med requirements. Students not considering a medically related career should substitute a foreign language.

**Geological Sciences**

**Freshman Year**
- CS 141, 142; ENG 111, 112; GEO 101, 322; GL 101, 102, 104, 105; MTH 132, 133; humanities and social science electives

**Sophomore Year**
- CHM 121, 122, 141; COM 101 or 141; GL 203, 330; PHY 101, 102, 103, 111, 112, 113; humanities and social science electives; free elective

**Geological Sciences—Groundwater Option**

**Freshman Year**
- ACC 201, 202, 203; CS 141; ENG 111, 112; GEO 101; GL 101, 102, 104, 105, 201; MTH 131, 132; TWW 100; TEG 260

**Sophomore Year**
- CHM 101, 102; COM elective; EC 201, 202; EGR 141; GEO 322; GL 203, 365; TMB 201, 210, 260; TQB 210; humanities electives

**Mathematics**

**Freshman Year**
- ENG 111, 112; MTH 132, 133, 231; PHY 101, 102, 103, 111, 112, 113; PSY 111; SOC 111; COM elective; free elective

**Sophomore Year**
- CS 141, 142; EC 201, 202, 203; MTH 232, 233, 280; humanities electives; electives

**Psychology**

**Freshman Year**
- ENG 111, 112; MTH 129; PSY 111, 112; SOC 111, 112; STT 164, 165, 265, 266; lab science sequence
Branch Campuses/Associate of Science Degree

Sophomore Year

Communication elective; CS 141, 142; PSY 200, 341, 351; SOC 320, 332, elective; humanities and social science electives.

Humanities and social science electives are to be chosen from the approved list of courses which fulfill General Education requirements.

Technical Programs

Two-year technical education programs leading to the associate degree in applied business or engineering are offered at the Western Ohio Branch Campus. Graduates of the technology programs will be qualified to work in industry, business, or service organizations. Specialized courses in real estate, banking, and insurance are available.

Humanities and social science electives are to be chosen from the approved list of courses which fulfill General Education requirements.

Requirements for the Associate of Applied Business Degree

Accounting Technology

Freshman Year

ADM 101; CS 200; EC 201, 202; ENG 111, 112; TAC 201, 202, 203; AIS 103; TEN 116; TMT 110, 111; humanities and technical electives

Sophomore Year

COM 203; TAC 210, 211, 220, 221, 225, 280, 299; TAD 232; TFI 205; TQB 210; general, humanities, social science, and technical electives

Business Management Technology (Management Option)

Freshman Year

ADM 101; EC 201, 202; ENG 111, 112; TAC 201, 202, 203; AIS 103; TMG 201, 210; TMT 110, 111; basic and technical electives

Sophomore Year

COM 203; TAD 232; TEN 116; TFI 205; TMG 202, 290, 299; TMT 201, 202; TQB 210; humanities, social science and technical electives

Business Management Technology (Retail Marketing Option)

Freshman Year

ADM 101; COM 203; EC 201, 202; ENG 111, 112; TAC 201, 202, 203; AIS 103; TAD 232; TMG 201, 210; TMT 110, 111

Sophomore Year

TEN 116; TFI 205; TMK 201, 202, 210, 220, 228, 240, 290, 299; TQB 210; humanities, social science, and technical electives

Data Processing Technology

Freshman Year

ADM 101; EC 201, 202; ENG 111, 112; TAC 201, 202; AIS 103; TDP 121, 122; TMG 201, 270; TMT 110, 111; humanities or social science elective

Sophomore Year

COM 203; TDP 130, 145, 221, 222, 230, 252, 299; TEN 116; TFI 205; TQB 210; humanities or social science elective; technical elective

Executive Secretarial Technology

Freshman Year

ADM 101; ENG 111, 112; TAC 201; AIS 103; TEN 115; TOA 201, 202, 203, 211, 212, 213, 235, 237, elective

Sophomore Year

COM 203; EC 201; TAD 232; TOA 221, 222, 231, 232, 233, 250, 299; basic, humanities, or social science electives; technical elective

Legal Secretary Technology

Freshman Year

ADM 101; ENG 111, 112; TAC 201; TAD 232; TEN 115; TOA 201, 202, 203, 211, 212, 213, 232, 235, 237; elective

Sophomore Year

EC 201; AIS 103; COM 203; TOA 221, 222, 231, 232, 233, 251, 299; basic, humanities, or social science electives; technical electives

Medical Secretary Technology

Freshman Year

BIO 101, 103; ENG 111, 112; TAC 201; TEN 115; TOA 201, 202, 203, 211, 212, 213, 235, 237

Sophomore Year

ADM 101; EC 201; PSY 111, 112; TAD 232; AIS 103; TOA 221, 222, 231, 232, 233, 252, 299; humanities or social science elective; general elective; technical elective

Requirements for the Associate of Applied Science Degree

Automotive Technology

Freshman Year

Communication elective; TAU 100, 102, 111, 112, TEG 145, 160, 209, 260; TMT 113, 114; TPH 111, 112
Sophomore Year
ADM 101, ENG 111, LCS 210; SOC 111; TAU 113, 200, 202, 203, 204, 206, 299; TEN 116, 118; basic, humanities or social science electives; technical elective

Electronics Technology
Freshman Year
ENG 111, 112, TEG 141, 145, 148, 160, 161, 162; TMT 113, 114, 115; TPH 111, 112; humanities or social science elective
Sophomore Year
ADM 101 or TMG 201; TEG 200, 210, 220, 230, 240, 241, 299; TEN 118; TMT 116; communication, humanities, or social science elective; technical electives

Manufacturing Technology
Freshman Year
Communication elective: ENG 111; TEG 145, 146, 150, 151, 152, 160, 161, 218; TMT 113, 114, 115; TPH 111, 112
Sophomore Year
CHM 101; TEG 153, 201, 202, 203, 204, 212, 219, 299; TEN 118; TEG 201, 270; TMT 116; technical elective; social science elective

Mechanical Drafting/Design Technology
Freshman Year
Communication elective: ENG 111, 112; TEG 141, 145, 146, 147, 160, 212; TMT 113, 114, 115; TPH 111, 112; technical elective
Sophomore Year
TEG 150, 170, 201, 202, 203, 204, 205, 209, 299; TEN 118; TMT 116; humanities or social science electives; technical elective; general elective

Water Well Technology
Freshman Year
ENG 111; GL 101, 104, 201; TEN 116; TEG 150, 160; TMT 113, 114; TPH 111, 112; TWW 100, 105, 106, 107; summer field experience: TWW 101, 102, 210
Sophomore Year
GL 203, 365; TEG 145, 260; TWW 108, 201, 202, 211, 299; TEN 118 or TEG 217; communication elective; general elective; technical electives
Course Descriptions
Courses/Accountancy

Please see page 5 for a list of course abbreviations and an explanation of the course numbering system.

Accountancy/ACC

201-3, 202-3, 203-3 Accounting Concepts and Principles I, II, III
Introduction to accounting for business enterprises; includes preparation and analysis of financial statements and reports for managers and other users. Must be taken in sequence.

231-3 Income Tax Planning
Individual and business decisions involving federal income taxes. Not open to business and administration majors.

Advanced Courses

All courses listed below require junior standing, in addition to the listed prerequisites.

300-3 Accounting for Managerial Analysis
Analysis and interpretation of accounting information for management in the functions of planning, control, and decision making. Credit will not be granted to students with credit for ACC 321. Not open to accountancy majors. Prerequisite: ACC 203.

Development of financial accounting theory and its application to complex problems in the valuation of balance sheet accounts, determination of net income, and preparation of financial statements. Must be taken in sequence. Prerequisite: ACC 203.

321-3 Management Accounting I
Concepts, techniques, and detailed accounting procedures for the manufacturing firm. Prerequisite: ACC 203.

322-3 Management Accounting II
Application of cost accounting concepts and techniques to complex problems in manufacturing accounting and to other areas, including distribution costs and research and development costs. Prerequisite: ACC 321.

331-3 Income Tax Accounting I
History, theory, and basic tax structure pertaining to individuals and business. Prerequisite: ACC 203.

332-3 Income Tax Accounting II
Corporate, partnership, estate, gift, social security, and other federal taxes. Prerequisite: ACC 331.

407-3 Financial Accounting IV
Comprehensive study of partnerships and consolidated financial statements. Accounting for branch and foreign operations. Prerequisite: ACC 306.

411-3 Accounting Systems I
Fundamental concepts of information, communication, and systems which form the framework for the design of data processing and accounting systems. Prerequisite: ACC 306, 322; AIS 103.

412-3 Accounting Systems II
Application of accounting systems in handling principal business transactions and situations. Prerequisite: ACC 411.

421-3 Auditing I
Introduction to principles, standards, and procedures involved in conduct of an audit by the independent accountant. Prerequisite: ACC 306.

422-3 Auditing II
Application of auditing techniques with emphasis on the audit report and other special reporting problems. Consideration of management services and the auditor's responsibility to third parties. Prerequisite: ACC 421.

431-3 Governmental Accounting
Application of accounting principles to fund accounting for government units with consideration given to institutional accounting. Prerequisite: ACC 305, 321.

477-1 to 3 Special Studies in Accounting

478-3 Honors: Independent Study in Accountancy
Research in accounting for fulfillment of the Honors Program project requirement. Permission of department chair required.

481-6 Internship in Accounting
One quarter, faculty-supervised internship in the areas of public, industrial, or governmental accounting. Course requires semimonthly seminars and reports. Approval of Committee on Accounting Internship required.

498-3 Seminar in Management Accounting
Identification, description, and analysis of the behavioral science and quantitative methods applications for management accounting. Senior standing required. Prerequisite: ACC 306, 322.

499-3 Seminar in Financial Accounting
Identification and analysis of contemporary issues and problems in the area of financial accounting. Senior standing required. Prerequisite: ACC 322, 421.

Administration/ADM

101-3 The World of Business and Administration
Introduction to American business and its environment.

105-3, 106-3 Small Business Management I, II
Management and control of small business; special attention to minority business problems. Must be taken in sequence. Not open to business and administration majors.
211-3 Personal Law
Understanding law dealing with people as individuals, rights and obligations pertaining to contracts, negligence, consumer problems, real and personal property, crimes, employment, insurance, the courts. Not open to business and administration majors.

Advanced Courses
All courses listed below require junior standing, in addition to the listed prerequisites.

350-3 Business Law I
Nature of law and legal systems. Torts, liability, contracts; essential elements.

351-3 Business Law II
Law of agency, partnerships, corporations, credit, and bankruptcy. May be taken after ADM 352. Prerequisite: ADM 350.

352-3 Business Law III
Law of property, sales, and commercial paper, including discussion of the Uniform Commercial Code. May be taken before ADM 351. Prerequisite: ADM 350.

477-1 to 4 Special Problems
Topics vary from quarter to quarter. Permission of instructor required.

480-3 Special Topics in Business and Government
Topics include current problems of interest and value in the area of business, such as government regulation of business, social responsibility of business, and legal problems in business.

483-3 Business Enterprise and Social Issues
Analysis of selected areas involving social issues and business.

Administrative Information Systems/AIS
103-3 Introduction to Data Processing and COBOL
Data processing fundamentals and terminology pertinent to programming business systems; students required to write and test COBOL programs. (Previously listed as ADM 103.)

300-3 Administrative Information Systems, Analysis and Design
Teaches the student to analyze informational requirements, design systems that fulfill these requirements, and communicate them to others for implementation. Prerequisite: AIS 103, CS 200.

Aerospace Science/AES
121-1 US Military Forces I

122-1 US Military Forces II

123-1 US Military Forces III

221-1 Development of Aerospace Power I
Explores the early development of air power until World War II. Studies center around the development of various concepts of air power employment and upon factors which have prompted research and technological change.

222-1 Development of Aerospace Power II
Explores the early development of air power from World War II through the Berlin airlift. Studies center around the development of various concepts of air power employment and upon factors which have prompted research and technological change.

223-1 Development of Aerospace Power III
Explores the development of air power from the Korean War until the present. Studies center around the development of various concepts of air power employment and upon factors which have prompted research and technological change.

331-3 Aerospace Leadership and Management I
Examines the Air Force manager’s world and elements of the job. Examines leadership with emphasis on the insights provided by leadership research. Provides experience in exercising communicative skills necessary for effective management and leadership.

323-3 Aerospace Leadership and Management II
Examines leadership styles and research models. A thorough review of the implications of the styles in improving management techniques is conducted. Planning, organizing, controlling, and management-by-objectives are studied extensively.

333-3 Aerospace Leadership and Management III
Examines the aspects of management delineating the decision-making process as it relates to the individual and the group. Discusses organizational structure staffing, examines managerial strategy and tactics. Reviews manager’s role in dealing with conflict/change.
Courses/Aerospace Science

431-3 National Security Forces in Contemporary American Society I
Analysis of the role and function of the military officer in democratic society, the complex relationships involved in civil-military interactions, and the bureaucratic system for formulating and implementing US defense policy.

432-3 National Security Forces in Contemporary American Society II
Continued analysis of the bureaucratic system for formulating and implementing US defense policy, plus analysis of the impact of the domestic and international systems on US defense policy and strategy.

433-3 National Security Forces in Contemporary American Society III
Analysis of the impact of the domestic and international system on US defense policy and strategy, introduction to the laws of war and military law, and an exposure to initial commissioned service.

Anatomy/ANT

201-4 Basic Human Anatomy I
Basic histological, developmental, and topographical anatomy of the musculoskeletal, cardiovascular, and hematopoietic-lymphoreticular systems. Laboratory demonstrations and discussions of human material and use of audiovisual aids. 2 hours lecture, 4 hours lab. Permission of instructor required.

202-4 Basic Human Anatomy II
Basic histological, developmental, and topographical anatomy of the digestive, respiratory, urinary, reproductive, endocrine, and nervous systems. Laboratory demonstrations and discussions of human material and use of audiovisual aids. 2 hours lecture, 4 hours lab. Permission of instructor required.

351-3 Fossil Evidence for Human Evolution
(Listed jointly with Department of Sociology and Anthropology; see ATH 351.) History, description, and interpretation of the fossil record for primate evolution with an emphasis on human evolution. Prerequisite: ATH 140, 141, 142, or permission of instructor.

392-2 Fundamentals of Neurobiology Lab
Development, structure (gross and microscopic), and functional relationships of the mammalian nervous system, including aspects of neuroendocrinology, neurochemistry, and comparative neurology. Permission of instructor required.

488-1 Independent Reading
Junior standing and departmental approval required.

491-4 Fundamentals of Human Neurobiology
Development, structure, and function of the human nervous system as it relates to neuropsychology, clinical neurology, and behavioral science. Permission of instructor required. (Previously listed as ANT 391.)

499-1 Special Problems in Anatomy
A maximum of four credit hours applicable toward degree requirements. Minimum 2.2 cumulative grade point average and departmental approval required.

Anthropology/ATH

140-4 Introduction to Cultural Anthropology
Cultural development in various parts of the world; discussions of the different ways of life of contemporary peoples and the relationship between primitive and contemporary cultures.

141-4 Introduction to Physical Anthropology
The physical and biological nature of humans including primate behavior, evolution, genetics, and human variability.

142-4 Introduction to Archaeology
Introduction to the nature of archaeological data, techniques of archaeological dating, and methods of data collection, analysis, and interpretation.

200-4 World of Primitive Contemporaries
Survey of the non-Western cultures of the world with special emphasis on peoples more popularly known as our primitive contemporaries.

240-4 Indians of North America
Culture areas and cross-cultural characteristics of the North American Indian.

300-4 Laboratory in Archaeology
Emphasizes recognition and analysis of archaeological remains from prehistoric and historic sites. Students develop an original analysis of some body of archaeological material. Prerequisite: ATH 140 or 369.

340-4 Introduction to Applied Anthropology
Designed to introduce various aspects of applied anthropology as currently utilized in a variety of behavioral activity fields locally, nationally, and internationally. Prerequisite: ATH 140 and/or permission of instructor.

343-4 Indians of South America
A descriptive survey of South American Indian societies with special emphasis on their ecological adaptations and their attempts to survive in the twentieth century. Prerequisite: ATH 140.

346-4 Anthropology of Religion
(Listed jointly with Department of Religion; see REL 360.) Anthropological approach to meaning and function of religion in social life, and nature of thought or belief systems that give rise to different forms of religious life; emphasis on primitive and peasant societies.
Anthropological Linguistics
The science of language as an anthropologist's tool for field research. How to describe language as sound, and write an unwritten language; how the anthropologist can make use of linguistic training for acquiring cultural data.

351-4 Fossil Evidence for Human Evolution
History, description, and interpretation of the fossil record for primate evolution with emphasis on human evolution. Prerequisite: ATH 141 or permission of instructor.

352-4 Primate Behavior
Detailed examination of the behavior of nonhuman primates (monkeys and apes) as it relates to human evolution and behavior. Prerequisite: ATH 141 or permission of instructor.

358-4 Human Variation and Adaptation
Examination of biological variation in human populations focusing upon interpopulation variation, adaptation, and the concept of race. Prerequisite: ATH 141 or permission of instructor.

363-4 Archaeology of Mesoamerica
Detailed examination of the major cultures and traditions of prehistoric Mexico and Guatemala, with emphasis on the Olmec, Maya, Toltec, and Aztec civilizations. Prerequisite: ATH 140, 142.

364-4 Archaeology of South America
Detailed examination of the major prehistoric cultures and traditions of the Americas, with special emphasis on the Inca civilization and its predecessors. Prerequisite: ATH 140, 142.

365-4 Archaeology of North America
A detailed examination of the major prehistoric cultures of North America. Emphasis is on eastern North American prehistory. Prerequisite: ATH 140, 142.

368-4 Archaeological Field Techniques
Classroom and field preparation for archaeological survey and excavations. Prerequisite: ATH 142.

369-6 to 12 Field School in Archaeology
Excavation training on prehistoric sites. Permission of instructor required. Offered summer session only.

392-2 to 4 Readings in Anthropology
May be taken for letter grade or pass/unsatisfactory. Departmental approval required.

396-2 Careers for Anthropology Majors
A combination workshop and field study in which students learn how to prepare a resume, how to find out about career possibilities, and how to meet people who are active practitioners. Prerequisite: COM 304.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of anthropology.

400-4 Topics in Archaeology
Advanced study of various specialized aspects of archaeology. Completion of twelve credit hours of anthropology required.

410-4 Special Topics in Cultural Anthropology
Selected topics concerning the method and theory of anthropological thought and their relationship to the allied disciplines of economics, linguistics, art, politics, and history. Special emphasis placed on current trends influencing research in cultural anthropology. Topics vary from quarter to quarter. Completion of twelve credit hours of anthropology or permission of instructor required.

446-4 Peoples and Cultures of South Asia
Survey and analysis of cultural diversity and unity in Southern Asia, particularly India, Pakistan, Bangladesh, and Sri Lanka. Prerequisite: ATH 140, 142 or permission of instructor.

447-4 Peoples and Cultures of Africa
Survey of the peoples and sociocultural systems of Africa with special emphasis on sub-Saharan ecological and biocultural relationships. Prerequisite: ATH 140, 141 or 142.

448-4 Development of Ethnological Thought
Surveys historical development of ethnological thought, emphasizes theories of social and cultural change. Senior standing and permission of instructor required.

450-4 Political Institutions in Primitive Societies
Study of that part of the culture of primitive societies which we recognize as political organization. An attempt is made to show how in less complex (primitive) societies new local communities come into being through fission. Senior standing and completion of twelve credit hours of anthropology or permission of instructor required.

468-4 Seminar in Archaeological Theory
Wide-ranging survey of traditional and contemporary archaeological theory, with study of its applications in various parts of the world. Permission of instructor required.

492-2 to 4 Independent Research in Anthropology
May be taken for letter grade or pass/unsatisfactory. Departmental approval required.
Art and Art History/ART

All courses in the Department of Art and Art History are offered with a pass/unsatisfactory grade option.

206-4 Fundamentals of Drawing
Introduction to materials, techniques, and concepts of drawing. (Previously listed as ART 227.)

207-4 Introduction to Photo/Film
Exploration of basic processes and concepts in still and moving photography. Work involves learning some basic skills and techniques in both media. Assignments are designed to develop an understanding of light as an expressive element. (Previously listed as ART 257.)

208-4 Fundamentals of Sculpture
Introduction to basic processes, materials, and concepts of sculpture. (Previously listed as ART 277.)

209-4 Introduction to Color
Introduction to the study of the elements and interaction of color.

211-4 Art History I
Painting and sculpture before A.D. 1150. Introduction to the basic concepts of visual and stylistic analysis and an historical survey of painting and sculpture in the western world from prehistoric to medieval times.

212-4 Art History II
Painting and sculpture from 1150 to 1850. Historical survey of painting and sculpture in the western world from late medieval times to the dawn of the modern era. Prerequisite: ART 211 or permission of departmental adviser.

213-4 Art History III
Painting and sculpture since 1850. Historical survey of modern painting and sculpture in the western world. Prerequisite: ART 212 or permission of departmental adviser.

219-4 Studies in the History of Architecture
Development of architecture in terms of formal qualities, materials, techniques, and function from ancient to modern times. For art and art education majors.

228-4, 229-4 Beginning Drawing
Introduction to concepts and techniques of drawing. May include studies from the human figure and other natural forms. 229: Topics vary from quarter to quarter. Must be taken in sequence or permission of departmental adviser required. Prerequisite: ART 206.

237-4, 238-4, 239-4 Beginning Film/Video
Introduction to visual and aesthetic techniques and concepts, emphasizing development of individual artistic expression in various media such as film and video tape. Must be taken in sequence or permission of departmental adviser required. Prerequisite: ART 207 (or equivalent technical experience), or permission of instructor.

247-4, 248-4, 249-4 Beginning Painting
Working from still life and figure, emphasizing the use of color and drawing in visual organization. Must be taken in sequence or permission of departmental adviser required. Prerequisite: ART 206, 209; or permission of departmental adviser.

258-4 Beginning Photography
Development of personal concepts and aesthetic expression in photography. Emphasis on individualized approach to photographic problems that arise from the students' work.

259-4 Beginning Color Photography
Development of personal concepts and aesthetic expression in photography. Emphasis on individualized approach to photographic problems that arise from the students' work. Topics vary from quarter to quarter.

267-4 Beginning Printmaking
Exploration of printmaking, stressing intaglio methods: etching, engraving, drypoint, aquatint, and liftgrounds. Use of black-and-white techniques and introduction to color printing. Topics vary from quarter to quarter. Prerequisite: ART 206 (may be taken concurrently); or permission of departmental adviser.

268-4 Beginning Printmaking
Introduction to basic lithographic techniques using stone and/or metal plate. Emphasis on black-and-white printing and on aesthetic possibilities of the media. Topics vary from quarter to quarter. Prerequisite: ART 206, 228 (ART 228 may be taken concurrently); or permission of departmental adviser.

269-4 Beginning Printmaking
Introduction to silkscreening techniques such as stencil cut, photo stencil, and crayon and touche resists. Exploration of aesthetic possibilities of the media. Topics vary from quarter to quarter. Prerequisite: ART 207, 209 (ART 209 may be taken concurrently); or permission of departmental adviser.
278-4, 279-4 Beginning Sculpture
Introduction to fundamentals of sculpture, emphasizing basic processes and materials. Must be taken in sequence or permission of departmental adviser required. Prerequisite: for 278, ART 208.

287-4 Beginning Visual Communication
Introduction and orientation to the visual communication disciplines (graphic design, art direction, illustration), historically and currently. Prerequisite: ART 206 (may be taken concurrently), or permission of departmental adviser.

288-4 Beginning Visual Communication
Development of drawing skills utilizing tools, materials, and processes of the professional designer. Prerequisite: ART 206, 287, or permission of departmental adviser.

289-4 Beginning Visual Communication
Development of production skills and techniques for the preparation of material for reproduction. Prerequisite: ART 288 or permission of departmental adviser.

297-4, 298-4, 299-4 Museology and Gallery Management
Examination of the history, purposes, and literature of museums and galleries. Various aspects of gallery management such as planning, organizing, and installing exhibitions. Prerequisite: ART 213 or permission of departmental adviser.

301-1 to 4, 302-1 to 4, 303-1 to 4 Independent Study in Art
Special studies for qualified students of junior or senior standing. Intensive individual work with faculty supervision in art. May be repeated. Approval of adviser, department chair, and college dean required.

309-4 Studies in Art Theory and Philosophy
Courses offered under this number provide both historical surveys and intensive studies in art theory and philosophy. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

327-4, 328-4, 329-4 Intermediate Drawing
Development of personal concepts and aesthetic expression in drawing. Emphasis on individualized approach to drawing problems that arise from the students’ work. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 229 or permission of departmental adviser.

337-4, 338-4, 339-4 Intermediate Film/Video
Study of visual and aesthetic techniques and concepts, emphasizing development of the individual artistic expression in various film and video tape media. May be repeated for credit. Prerequisite: ART 239 or permission of departmental adviser.

347-4, 348-4, 349-4 Intermediate Painting
Emphasis on principles of pictorial organization. Attention to the relationship of subject matter and abstraction as related to contemporary and traditional approaches. May be repeated for credit. Prerequisite: ART 228, 249 or permission of departmental adviser.

357-4, 358-4, 359-4 Intermediate Photography
Development of personal concepts and aesthetic expression in photography. Emphasis on individualized approach to photographic problems that arise from the students’ work. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 259 or permission of departmental adviser.

367-4, 368-4, 369-4 Intermediate Printmaking
Development of personalized concepts and individual aesthetic expression in printmaking. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 267 or 268 or 269; or permission of departmental adviser.

Development of personal concepts and aesthetic expression in sculpture. Emphasis on individualized approach to sculptural problems using media selected by the students. May be repeated for credit. Prerequisite: ART 279 or permission of departmental adviser.

387-4 Intermediate Visual Communication
Introduction to design elements and principles used in visual organization of material. Prerequisite: ART 209, 269, 289; or permission of departmental adviser.

388-4 Intermediate Visual Communication
Development of understanding and use of typography, typesetting procedures, and techniques. Prerequisite: ART 387 or permission of departmental adviser.

389-4 Intermediate Visual Communication
Creation of images utilizing cultural forms in the solution of visual communication problems using drawing, photography, and graphic techniques. Prerequisite: ART 207, 388; or permission of departmental adviser.
400-2 Senior Seminar
Group reviews with discussions and critiques of senior work in a peer setting with faculty and visiting artists participating on an informal basis.

401-1 to 4, 402-1 to 4, 403-1 to 4 Independent Study in Art History
Special studies for qualified students of junior or senior standing. Intensive individual work with faculty supervision in art history. May be repeated. Approval of adviser, department chair, and college dean required.

404-1 to 4 Studies in Art History
Provides opportunities to explore problems and approaches to art and art history and includes cross-period and interdisciplinary studies. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

405-1 to 4 Studies in Art
Provides opportunities to explore problems and approaches to art history and includes cross-media and interdisciplinary studies. May be repeated with different titles.

406-4 Senior Paper in Art History
Independent, advanced research project in student's main area of interest, developed in consultation with art history faculty. For art history majors only. Completion of two 400-level courses in art history required.

409-4 Art Theory and Criticism
Historical surveys and intensive studies of art theory and criticism. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

410-4 Studies in American Art
General surveys and intensive studies of periods, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

411-4 Studies in Ancient and Classical Art
(Listed jointly with Department of Classics; see CLS 340.) General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles.

412-4 Studies in Medieval Art
General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 211 or permission of departmental adviser.

413-4 Studies in Renaissance Art
General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 212 or permission of departmental adviser.

414-4 Studies in Baroque Art
General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 212 or permission of departmental adviser.

415-4 Studies in Nineteenth Century Art
General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

416-4 Studies in Twentieth Century Art
General surveys and intensive studies of the period, major movements, and artists of the time. May be repeated with different titles. Prerequisite: ART 213 or permission of departmental adviser.

417-4 Studies in Non-Western Art
General surveys and intensive studies of periods, major movements, and artists in non-Western art. May be repeated with different titles. Prerequisite: ART 211 or permission of departmental adviser.

427-4, 428-4, 429-4 Advanced Drawing
Exploration of the structure and inter-relationships of visual form in drawing, painting, and sculpture. Principal historical modes of drawing examined. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 329 or permission of departmental adviser.

437-4, 438-4, 439-4 Advanced Film/Video
Development of personal concepts and aesthetic expression in media. Emphasis on individualized approach to media problems using film and video tape. May be repeated for credit. Prerequisite: ART 339 or permission of departmental adviser.

447-4, 448-4, 449-4 Advanced Painting
Continued emphasis on pictorial organization with increased attention to the student's personal imagery. May be repeated for credit. Prerequisite: ART 349 or permission of departmental adviser.

457-4, 458-4, 459-4 Advanced Photography
Development of personal concepts and aesthetic expression in photography. Emphasis on individualized approach to problems that arise from the students' work. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 359 or permission of departmental adviser.
467-4, 468-4, 469-4 Advanced Printmaking
Development of personalized concepts and individual aesthetic expression in printmaking. Topics vary from quarter to quarter. May be repeated for credit. Prerequisite: ART 369 or permission of departmental adviser.

477-4, 478-4, 479-4 Advanced Sculpture
Further development of personal concepts and aesthetic expression in sculpture. Emphasis on individualized approach to sculptural problems using media selected by the students. May be repeated for credit. Prerequisite: ART 379 or permission of departmental adviser.

487-4 Advanced Visual Communication
Advanced problems in visual communication involving application of design principles and problem-solving techniques to single-surface media: posters, ads, book covers. Prerequisite: ART 389 or permission of departmental adviser.

488-4 Advanced Visual Communication
Advanced problems in visual communication involving application of design principles and problem-solving techniques to multiple-surface media: books, magazines, displays, film, video. Prerequisite: ART 237, 487; or permission of departmental adviser.

489-4 Advanced Visual Communication
Advanced problems in visual communication involving application of design principles and problem-solving techniques to systems of visual communication. Prerequisite: ART 488 or permission of departmental adviser.

497-4 Advanced Museology and Gallery Management
Supervised independent field experience and practical work in all areas of art museum management in the university and greater Dayton area communities. Each student to be handled as a tutorial intern. May be repeated. Prerequisite: ART 299.

Art Education/AED
214-4 Foundations of Art Education
Introductory course in art education involving ideas and approaches to educating for aesthetic awareness, providing opportunities for the student's aesthetic development through experiences with conventional and unconventional art media, and offering an introduction to theories of art.

223-3 Crafts for Teachers
Creative problems in paper, wood, clay, fibers, and metal for the elementary grades. Participation and observation expected during course. Enrollment limited to elementary education majors. Prerequisite: AED 231 or permission of instructor.

224-2 Ceramics I
Rudiments of ceramic design, methods of forming, wheel throwing, firing, glazing, and decoration. Emphasizes ceramic techniques and procedures applicable to public school art program. An introductory studio design course or permission of instructor required.

225-4 Ceramics II
Advanced ceramic design, forming, wheel throwing, glaze calculations, decoration, and a high degree of experimental involvement. Emphasizes advanced ceramic techniques and procedures applicable to public school art program. Prerequisite: AED 224 or permission of instructor.

226-3 Modeling
Introductory work in construction of three-dimensional forms; sculptural potentials of clay and other plastic materials. Emphasizes modeling techniques for public school art program.

231-3 The Individual and the Creative Process
Emphasizes the elementary teacher's awareness of self as an individual responding to the environment and the recognition of the role of art in our culture. Includes methods and disciplines of creating with materials and tools, drawing and painting appropriate to public school classroom. For elementary education majors.

324-4 Enameling I
Introduction to basic methods and processes of application and fusing of ground glass to metals. Emphasizes enameling techniques and procedures for public school art program. Prerequisite: AED 214 or permission of instructor.

325-4 Enameling II
Advanced study of special methods and techniques of application and fusing of ground glass to metals. Emphasizes advanced enameling techniques and procedures for public school art program. Prerequisite: AED 324 or permission of instructor.

332-4 Graphic Communication and Educational Exhibits
Projects, readings, and discussions dealing with the design and symbolic use of letters and their relationship with other images toward communicating educational ideas and within the public school context. Junior standing in art education or permission of instructor required.

370-1 to 3 Independent Study
Planned readings, project, participation/observation clinic experiences, or other appropriate study on an independent basis. May be repeated to a maximum of nine credit hours. Junior or senior standing and permission of instructor required.
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411-4 Design: Process and Material
Advanced course in two- and three-dimensional design problems involving a wide range of techniques and materials related to teaching. Personal involvement in experimental approaches related to course problems. Completion of eight credit hours in advanced art education required. Prerequisite: AED 214 or equivalent.

420-4, 421-4, 422-4 Art Metal, Jewelry I, II
420: development of skill in manipulation of materials and tools for metal work appropriate for public school art program. 421: creative designing and making of jewelry. Technique and craftsmanship for various materials appropriate for public school art program. 422: advanced problems in design and making of jewelry forms appropriate for public school art program. Prerequisite: AED 214 or equivalent.

423-4, 424-4, 425-4 Fibers and Fabrics
423: introduction to fibers and fabrics as art forms. Basic techniques in various materials such as weaving, wrapping, twining, rya, batik, and other approaches appropriate to any school art program. 424: use of loom and other hand techniques in weaving. Experimental approaches in completion of original ideas. Emphasizes techniques for public school art program. 425: methods of silkscreen printing on fabrics. Emphasizes silkscreen as it may be used in public school program. Analysis of textile design in contemporary living. Prerequisite: AED 214 or permission of instructor.

426-4 Creative Stitchery
Various methods and procedures of working with stitchery and appliqued forms, work with flat and stitched fabrics for wall hangings and other fabric art forms. Emphasizes stitchery and fabric techniques for public school art program. Prerequisite: AED 214 or permission of instructor.

428-4 Pupil Expression Through Mural Painting
Development of individual creative expression through mural painting; application of mural technique to the public school program. Completion of sixteen credit hours of art education, four of which must be advanced, required.

429-1 to 6 Workshop in Art Education
Problems, processes, and techniques for development of art activities in elementary and secondary schools. Development of craft processes concerned with suitable projects for classroom work and public art education curricula. Offered spring and/or summer sessions only.

430-3 Independent Reading in Art Education
Expands students' knowledge of philosophy, aesthetics, creative and mental growth as related to art teaching and art education curricula. Emphasis on current books, magazines, and research in art education. Junior, senior, or graduate standing required.

431-3 Art and the Child
Understanding child growth and development through creative expression, with emphasis on functions and procedures for art in the classroom. Includes curriculum implementation strategies. Experiences in art media appropriate to the elementary school and in-field observations of art in the schools. Prerequisite: AED 214 or 231.

432-3 Art and the Adolescent
Develops an understanding of individual differences, psychological sets, and various roles of the adolescent as related to art and creativity. Curriculum planning, comparative theories, in-field observations, and analysis of art class content included. Prerequisite: AED 431 or permission of instructor.

436-1 to 4, 437-1 to 4 Minor Problems in Art Education
Individual problems in specified areas for the purpose of intense and concentrated work in one or more media; the development of a proficiency in one or more craft areas. Completion of sixteen credit hours of art education advanced crafts required.

438-4 Art Methods for Schools
Develops an understanding of the needs of children involved in art activities; study of elementary and secondary teaching techniques, materials, and curriculum organization. In-field work prior to student teaching. Reading components and teaching strategies included. Must be taken prior to student teaching. Prerequisite: AED 431, 432; ED 211 through 217; or equivalent. Corequisite: ED 327, 328, or 329.

439-4 Teaching Crafts in the Schools
Seminar for advanced students includes teaching methodology, safety factors, toxic substances, and an overview of crafts courses generally taught in public schools. Junior standing and completion of twelve credit hours of crafts courses required.

440-1 to 3 Workshop/Field Trip in Art Education
Survey of visual and performing arts. Visits to museums, galleries, and commercial sources of contemporary design and architecture. Written and/or visual evaluation of places visited required. One year of college or equivalent required.
Art Appreciation and Criticism in the Schools
Understanding influences and interaction of the creative arts in our present culture. Emphasis on importance of developing appreciation in the public school. Study of processes inherent in aesthetic criticism and their relationship to teaching in the arts. Completion of sixteen credit hours of art education, eight of which must be advanced, required.

Advanced Problems in Art Education
Concentrated and advanced work with specific art media such as ceramics, metals, and fabrics. Emphasis on creative work and methods of teaching advanced procedures applicable to the public school art room. Previous work in area of studio concentration required.

Architectural and Environmental Awareness
Combination seminar and studio focusing on curriculum development for the public school in architectural space and environmental awareness. Emphasis on human behavior and resources, ecology and human needs, aesthetics and history.

Art Therapy/AT
370-1 to 3 Independent Study in Art Therapy
Planned readings, project, participation, observation clinic experiences, or other appropriate study on an independent basis. Work is supervised by an art therapy faculty member. May be repeated to a maximum of nine credit hours. Junior or senior standing and permission of instructor required. (Previously listed as AED 370.)

420-3 Media in Art Therapy
Experience with a variety of media appropriate to the clinical setting. Appropriate art media for remediation, adaptation, and expression included with discussion of application procedures. Permission of instructor required.

429-1 to 6 Workshop in Art Therapy
A workshop focusing on problems, processes, and techniques for the development of art therapy in special settings with diverse populations. Work in art media, assessment strategies, and treatment plans included. Discussion of implementation procedures with populations.

44-3 Art and the Special Student
Experiences to help those who will work with handicapped/disabled students to become aware of creative philosophy, art media, and therapeutic procedures. Approaches in creative activity included. Junior or senior standing required. Prerequisite: AED 431 or equivalent; or permission of instructor. (Previously listed as AED 444.)

Aviation/AVI
101-4 Private Ground Instruction
Forty hours of ground instruction covering radio navigation, meteorology, FAA regulations, communications, aircraft construction, and performance data to meet requirements of private pilot's written examination.

102-4 Flight Instruction
Thirty-five hours of flight training and related lectures, including primary flight maneuvers and cross-country flying. Meets requirements for private pilot's certificate. Laboratory fee required. Students required to have passed FAA written examination.

Biology and Chemistry/Courses
150-3 Introduction to Nutrition
A study of the nutrients, their functions, and factors determining nutrient availability. Designed for non-science majors. Prerequisite: BIO 111, 112, or 113, or equivalent.

210-4 Introductory Biochemistry
Introduction to general principles of biochemistry especially for students interested in the health sciences. Topics include the chemistry of biological molecules, cellular metabolism, and mode of action of selected chemicals at the biochemical level. Prerequisite: CHM 102 or 141.

240-3 Drugs and Society
An overview, for either science or non-science majors, of drugs that primarily affect mood, behavior, and perception and are subject to abuse. Drugs are discussed in their cultural, historical, and pharmacological perspectives. Prerequisite: BIO 113 or permission of instructor.

250-4 Human Nutrition
Nutrition as an integrated science emphasizing biochemical and physiological principles. General topics include nutritional energetics, specific nutrients, and nutrition and physiology. Relation of basic concepts to clinical situations and to nutritional management of specific disease conditions. Prerequisite: BIO 112; BIO 113 or 114; or equivalent; or permission of instructor.

340-4 Pharmacology
Introduction to general principles of pharmacology, drug classification, and the sites and mode of action of selected drug agents. Prerequisite: CHM 102; PHS 218, 219.

401-1 to 4 Topics in Biological Chemistry
Senior standing and departmental approval required.
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421-4.5 Biochemistry I
Chemistry of biological compounds and introduction to enzymes. Organic chemistry or permission of instructor required. (BCH 210 cannot be substituted for CHM 213).

422-3 Laboratory for Biochemistry I
Quantitative techniques in biochemistry, and chemical and instrumental methodology. Corequisite: BCH 421 (may be taken separately with permission of instructor).

423-4.5 Biochemistry II
Intermediary metabolism of carbohydrates, proteins, nucleic acids, and lipids. Prerequisite: BCH 421.

424-3 Laboratory for Biochemistry II
Properties of enzymes, enzyme catalyzed reactions, and application of isotopes to the study of metabolism. Corequisite: BCH 423 (may be taken separately with permission of instructor).

425-4.5 Clinical Biochemistry
Application of biochemical knowledge to a thorough understanding of disease states. Builds on material presented in BCH 421 and 423. Permission of instructor required.

432-3 Plant Biochemistry
(Listed jointly with Department of Biological Sciences; see BIO 432.) Detailed study of biochemistry of photosynthesis, respiration, and other metabolic and biosynthetic processes in plants. Prerequisite: BCH 421, 423.

433-2 Laboratory for Plant Biochemistry
(Listed jointly with Department of Biological Sciences; see BIO 433.) Experiments follow the subject matter sequence of BCH 432. Corequisite: BCH 432 or permission of instructor.

488-1 Independent Reading
Junior standing and departmental approval required.

499-1 to 4 Special Problems in Biological Chemistry
Senior standing and minimum 2.2 cumulative grade point average required.

Biological Sciences/BIO

101-4 Cells, Genes, and Genetics
Study of cells and genetics provides the focus for examination of the unique interactions of matter, energy, and information which produce life and provide for its continuity and change. 3 hours lecture, 2 hours lab. Credit will not be granted to students with credit for BIO 112.

102-4 Evolution and Ecology
Examination of the interactions between organisms and their environments that determine the abundance, forms, and adaptations of species in space and time. 3 hours lecture, 2 hours lab. Credit will not be granted to students with credit for BIO 111. Prerequisite: BIO 101.

103-4 Human Biology
Development of a conceptual understanding of the organization and function of the human body throughout the cycle of life. 3 hours lecture, 2 hours lab. Credit will not be granted to students with credit for BIO 113. Prerequisite: BIO 102.

111-4 Principles of Biology: Ecology
Introduction to basic concepts of biology. Topics include environment, ecology, and the diversity of life.

112-4 Principles of Biology: Genetics and Evolution
Introduction to basic concepts of biology. Topics include genetics, evolution, and the molecular and cellular basis for the unity of life. Prerequisite: for majors, BIO 111, CHM 101 or 121; for nonmajors, BIO 111.

113-4 The Human as an Organism
Introduction to biology at the organismic and systematic levels with emphasis on man. Topics reflect contemporary interests and usually include man as an evolved species, nutrition, disease, and reproduction. Prerequisite: BIO 111, 112.

114-4 Organismic Biology
Introduction to the structure and function of plants and animals. Prerequisite: BIO 111, 112.

119-1 Honors Recitation, Principles of Biology (111, 112, 114)
Recitation/discussion section to review basic concepts developed in the laboratory. Coregistration in lecture and honors laboratory required.

199-1 Introduction to Biological Investigation
For individually motivated students at the introductory level who wish to pursue some particular project under faculty supervision. Graded pass/unsatisfactory. May be repeated not more than three times, in three separate quarters. Permission of supervising instructor required.

Departmental Unit Courses

202-5 Microbiology
Study of morphology, cultivation, and biochemical activities of microorganisms. Survey of viruses, bacteria, blue-green algae, and fungi and their diversity in natural environments. 3 hours lecture, 4 hours lab. Prerequisite: BIO 111, 112, CHM 141.
203-5 Biology of Lower Plants
Study of morphology, taxonomy, and ecology of algae, fungi, and bryophytes. Special emphasis given to growth and developmental patterns, modes of reproduction, importance to man and to ecosystems, diversity, distribution, and phylogenetic relationships. 2 hours lecture, 6 hours lab. Prerequisite: BIO 111, 112.

204-5 Biology of Vascular Plants
Study of form, development, reproduction, and life histories of vascular plants. Survey of representative plant families emphasizing phylogenetic relationships, distribution, and vegetational types in natural habitats. 2 hours lecture, 6 hours lab. Prerequisite: BIO 111, 112.

205-5 Biology of the Invertebrates
Morphology, development, physiology, and evolutionary relationships of major invertebrate groups. 3 hours lecture, 4 hours lab. Prerequisite: BIO 111, 112.

206-5 Vertebrate Biology
Introduction to vertebrate animals, including adaptive morphology, comparative embryology, and evolutionary history. 2 hours lecture, 6 hours lab. Prerequisite: BIO 111, 112.

302-3 Genetics
The nature and function of genetic material and its role in quantitative, physiological, and population genetics of plants, animals, and man. Prerequisite: BIO 111, 112; MTH 130; or permission of instructor.

303-5 Vertebrate Histology
Study of vertebrate tissues and survey of the microscopic structures of selected organs. Laboratory emphasizes basic preparative techniques and tissue recognition. 3 hours lecture, 4 hours lab. Prerequisite: BIO 111, 112; MTH 130; or permission of instructor.

304-5 Plant Physiology
Special aspects of plant physiology which set plants apart from other organisms. Laboratory introduces independent research concerning plant nutrition and bud development. 3 hours lecture, 4 hours lab. Prerequisite: BIO 203 or 204; CHM 141.

305-5 Animal Physiology
Basic adaptive mechanisms and their coordination in the activities of the metazoa. 3 hours lecture, 4 hours lab. Prerequisite: BIO 111, 112; MTH 130; or permission of instructor.

306-5 Ecology
Introduction to ecology, emphasis on the organism’s interaction with the environment. 3 hours lecture, 4 hours lab. Prerequisite: for majors, completion of Area B requirement; for nonmajors, BIO 111, 112, junior or senior standing, permission of instructor.

307-5 Cell Biology
Elements of cell structure are studied with emphasis on functional correlations. Laboratory experiments demonstrate principles of isolation, fractionation, and purification of organelles; biochemical and physiological properties of cells and cell constituents; and metabolic interrelationships. 3 hours lecture, 6 hours lab. Prerequisite: BIO 111, 112; CHM 211, 212; PHY 111.

312-2 Genetics Laboratory
Accompanying laboratory for BIO 302. Experiments and techniques in genetic research. Prerequisite: BIO 111, 112; MTH 130; or permission of instructor. Corequisite: BIO 302.

402-3 Molecular Biology
The molecular basis of the living state with emphasis on macromolecular structure and function and the molecular mechanisms for the transmission and expression of genetic information. Recommended preparation: BIO 202, 302. Prerequisite: BIO 111, 112; CHM 213.

403-5 Developmental Biology
Describes underlying processes that initiate, in plants and animals, the development of tissues and the whole organism. Laboratory exercises designed to highlight developmental processes. 3 hours lecture, 4 hours lab. Recommended preparation: BIO 303, 402. Prerequisite: BIO 111, 112; CHM 213.

405-3 Molecular Biology Laboratory

492-1 to 2 Senior Seminar
Literature survey, discussion, and oral presentations of selected topics in the biological sciences. Course requires written presentations when offered for two credits and one recitation. Senior standing required.

Additional Courses
201-1 to 3 Topics in Biology
Selected biological topics of current interest. May be repeated. Sophomore standing required.

292-1 Introduction to Environmental Health
Introduction to the role of the environmental health profession in meeting current problems in public health and environmental quality.

301-5 Physiology and Health
Basic structure and function of the human; consideration of health, disease, and abnormalities. 3 hours lecture, 2 hours lab, 1 hour recitation. Cannot be applied to Area F requirement for biology majors. Prerequisite: BIO 111, 112, 114; or permission of instructor.
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315-3 Introduction to the History of Biology
Overview of the antecedents of modern biological thought. Sophomore standing required.

350-3 Biology of Economic Plants
Study of economically important algae, fungi, lichens, bryophytes, and vascular plants as related to man. Emphasis given to plants that are food sources, involved in industrial processes, and which affect man’s overall cultural and social development. Prerequisite: BIO 114 or permission of instructor.

351-1 Biology of Economic Plants Laboratory
Provides opportunity for direct observation of plants as an economic commodity and emphasizes the survey approach to economically important plant groups. Corequisite: BIO 350.

356-3 Principles of Environmental Health I
Relationship of physical and biotic environment to design and operation of systems and procedures employed in maintenance and promotion of a quality, healthful human environment. Emphasis on water quality control and waste disposal methods. For environmental health majors. Prerequisite: BIO 202, CHM 141.

357-3 Principles of Environmental Health II
Relationship of physical and biotic environment to design and operation of systems and procedures employed in maintenance and promotion of a quality, healthful human environment. Emphasis on food sanitation, solid waste, institutional sanitation. Prerequisite: BIO 202, CHM 141.

361-3 Environmental Health Field and Laboratory Practice I
Field and laboratory technology utilized in monitoring the environment and evaluating effectiveness of environmental control operations. Emphasis on water quality control and waste disposal methods. For environmental health majors. Corequisite: BIO 360.

362-3 Principles of Environmental Health III
Theory, design, and operation of systems, facilities, and procedures employed in maintenance and promotion of a quality, healthful environment, with emphasis on housing and recreation sanitation. Prerequisite: BIO 301, STT 265; or permission of instructor.

365-3 Environmental Health Field and Laboratory Practice III
Field and laboratory technology utilized in monitoring the environment and evaluating effectiveness of environmental control operations. Emphasis on housing and recreation sanitation. Corequisite: BIO 364.

366-9 Environmental Health Field Internship
One-quarter internship in a cooperating environmental or public health agency or industrial organization. Supervised by faculty and professional environmentalists. Reports and specific assignments determined in cooperation with internship director. Graded pass/unsatisfactory. Enrollment limited to environmental health majors. Approval of internship director required. Prerequisite: BIO 360 through 365.

375-3 The Biology of Human Sex
Human reproductive physiology, including family planning, fertility, and introduction to human development. Introduction to physiologic, genetic, and anatomic sexual dysfunction. One year of introductory biology and junior standing, or permission of instructor, required.

401-1 to 3 Topics in Modern Biology
Advanced topics in modern biology of current interest. Topics vary from quarter to quarter. May be repeated. Senior standing required.

404-5 Basic Electron Microscopy
Basic theory and practical experience in transmission electron microscopic technology. Animal, plant, and particulate specimens are processed in the laboratory. Completion of chemistry requirement, junior or senior standing, and permission of instructor required. Prerequisite: BIO 303 or 307.

411-6 The Aquatic Environment
Introduction to limnology. Field and laboratory course concerned with physical, chemical, and biological factors that characterize natural waters. 3 hours lecture, 6 hours lab, field trips. Recommended preparation: BIO 306 or equivalent or permission of instructor.

412-6 Aquatic Communities
Analysis of the functional relationships of organisms with the aquatic environment; special emphasis on species interactions. 3 hours lecture, 6 hours lab, field trips. Recommended preparation: BIO 306 or equivalent.

413-5 Biological Problems of Water Pollution
Introduction to biological aspects of water pollution. Lectures, discussions, laboratories,
and field trips on various types of pollutants and their impact on aquatic life. 3 hours lecture, 4 hours lab, required field trips. Recommended preparation: BIO 411 or permission of instructor.

414-5 **Terrestrial Communities**
The organization, diversity, distribution, and abundance of animals in plant communities, with particular regard to terrestrial insect-plant relationships. Laboratories and field trips acquaint students with various techniques used for ecological studies of population and community dynamics in natural environments. Special travel fee may apply. Prerequisite: BIO 306 or equivalent and permission of instructor.

415-4 **Environmental Toxicology**
Covers toxicological problems encountered in the field of environmental health. Emphasis is on monitoring, control, and regulation of toxic substances in air and water and in industrial environments. Completion of a course in physiology and in organic chemistry required.

416-3 **Principles of Ecotoxicology**
The various types of ecotoxicants and their impact on aquatic and terrestrial organisms. Emphasis is on types and sources of toxicants: their uptake, accumulation, excretion, and biological effect. Completion of a course in organic chemistry and in physiology required. Recommended preparation: BIO 411, 415.

417-4 **Evolution**
(Taught jointly with Department of Religion; see REL 417.) Introduction to the biological, philosophical, theological, and ethical aspects of the concept of evolution. Junior or senior standing and permission of instructor required.

418-4 **Methods in Environmental Toxicology**
Study of methods used to study toxic effects of chemical and physical agents on living organisms. Emphasis is on those which affect populations and communities within natural ecosystems, but can be used to indicate potential toxicity for humans. Prerequisite: BIO 415/615 or 416/616, or PHA 751.

419-3 **Modern Methods in the Molecular Biology of Nucleic Acids**
Examines modern laboratory techniques used to investigate nucleic acids. Lectures outline principles of techniques plus actual laboratory experience using the techniques. Electrophoresis, spectrophotometry, use of restriction enzymes. Recommended preparation: BIO 403. Prerequisite: BIO 202; BIO 402 or BCH 421.

420-3 **Designing Biological Experiments**
Principles of effective sampling design for biological experiments. Reconciling the peculiarities of biological data with the assumptions of statistical methods. Lectures and problem sets. Completion of two biology courses at 300 or above level and one course in statistics required.

425-5 **Microbial Ecology**

426-4 **Human Genetics**
Nature of human genetic traits, methods of analysis of inheritance. Prerequisite: BIO 302, 402. (Previously listed as BIO 450.)

428-3 **Biology of Slime Molds**
The biology of the slime molds includes primarily the protosteliales, acrasiales, and myxomycetes. For each group, the life cycle, the ultrastructure and gross morphology of developmental stages, and the natural relationships and taxonomy are discussed and demonstrated. The course is designed primarily for students or inservice teachers who may wish to use these organisms in future classroom teaching or research. Prerequisite: BIO 111, 112, 202, and junior standing or permission of instructor.

430-3 **Radiation Biology**
Introduction to the nature of ionizing radiation, its biological effects, and its applications to biological problems. Prerequisite: BIO 403, CHM 213, MTH 131, PHY 113 or permission of instructor.

432-3 **Plant Biochemistry**
(Taught jointly with Department of Biological Chemistry; see BCH 432.) Detailed study of the biochemistry of photosynthesis, respiration, and other metabolic and biosynthetic processes in plants. Prerequisite: BCH 421, 423.

433-2 **Laboratory for Plant Biochemistry**
(Taught jointly with Department of Biological Chemistry; see BCH 433.) Experiments follow the subject matter sequence of BIO 432. Corequisite: BIO 432 or permission of instructor.

434-2 **Introduction to Medical Laboratory Science**
Introduction to procedures and techniques related to clinical laboratory function. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.
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435-2 General Laboratory Methods
Specimen collection and operation of basic clinical laboratory instruments. Enrollment limited to medical technology interns. Corequisite: BIO 434.

436-5 Diagnostic Microbiology
Application of microbiological principles to diagnosis, infection, and resistance. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

437-5 Methods of Diagnostic Microbiology
Laboratory experiments in diagnostic microbiology. Enrollment limited to medical technology interns. Corequisite: BIO 436.

438-5 Clinical Chemistry
Application of principles of biochemistry to the human in health and disease. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

439-5 Clinical Laboratory: Biochemistry
Laboratory course using current clinical chemistry techniques for the analysis of human tissues and fluids. Enrollment limited to medical technology interns. Corequisite: BIO 438.

440-2 Renal Function
Anatomy and physiology of the renal system in relation to urine composition in health and disease. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

441-3 Laboratory Study of Renal Function
Laboratory study of cellular and chemical components of urine. Enrollment limited to medical technology interns.

442-3 Hematology
Study of hematopoiesis, blood cell cytology, and clotting mechanisms of human blood. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

443-5 Hematology Laboratory
Laboratory study of cellular elements of blood and hemostasis. Enrollment limited to medical technology interns. Corequisite: BIO 442.

444-3 Immunohematology
Immunology and genetics of human blood groups and types. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

445-3 Immunohematology Laboratory
Study of immunology as applied to human blood isoantigens and isoantibodies. Enrollment limited to medical technology interns. Corequisite: BIO 444.

446-2 Immunology
Study of antigens and antibodies with emphasis on in vivo and in vitro reactions. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum required.

447-3 Laboratory Immunology: Serology
Study of detection and measurement of antigens or antibodies using in vitro systems. Enrollment limited to medical technology interns. Corequisite: BIO 446.

448-2 Clinical Pathology Correlation
Correlation of clinical laboratory findings with different human physiological states. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum and departmental approval required.

449-2 Clinical Pathology Seminar
Presentation and discussion of topics in clinical laboratory medicine. Enrollment limited to medical technology interns. Completion of preprofessional medical technology curriculum and departmental approval required.

450-1.5 Pediatric Clinical Laboratory
(Listed jointly with Medical Technology; see MT 450.) Study of basic analytical techniques applicable to the examination of pediatric body fluids and tissues. Enrollment limited to students in medical technology clinical year.

452-3 Advanced Genetics
Basic concepts of genetic control of form, function, and change in biological systems; emphasis on microbial, developmental, and biochemical genetics. Prerequisite: BIO 302, 402, or permission of instructor.

453-3 Advanced Genetics Laboratory
Illustrates some aspects of microbial, biochemical, and developmental genetics. Prerequisite or corequisite: BIO 452.

454-3 Microbial Genetics
Basic concepts of production of microbial mutations, their detection and analysis. Use of microbial genetics in elucidating cellular functions. The construction of plasmids and their use in genetic engineering. Prerequisite: BCH 421 or 423 or BIO 402; BIO 202, 302; or permission of instructor.

455-3 Plant Systematics
Survey of topics and techniques encountered in studies of relationships and evolution of the
higher plants, emphasizing the flowering plants. Senior standing or permission of instructor required. Prerequisite: BIO 204.

**456-3 Microbial Genetics Laboratory**
Familiarizes students with microbial genetics techniques. Corequisite: BIO 454.

**457-3 Microbial Physiology**
Study of the physiological and biochemical processes associated with microbial growth, development, and metabolism. Prerequisite: BIO 202, 402 or permission of instructor.

**458-3 Microbial Physiology Laboratory**
Laboratory study of the physiology and biochemistry of microbial growth, development, and metabolism. Prerequisite: BIO 202. Corequisite: BIO 457.

**461-1 Problems in Environmental Health**
Seminar/workshop in professional aspects of environmental health. Enrollment limited to environmental health majors who have completed field internship. Prerequisite: BIO 366 or permission of instructor.

**462-3 Environmental Aspects of Human Disease**
Communicable and occupational diseases of contemporary importance; includes epidemiological investigation, environmental considerations, and control procedures. Prerequisite: BIO 360 through 365; or M&I 426; or permission of instructor.

**463-3 Community Public Health Resources**
Lecture/seminar course covering principles of public health organization and administration, public health law, comprehensive health planning, and the community services provided by health-related agencies. May be taken for letter grade or pass/unsatisfactory. For allied health students and personnel. Prerequisite: BIO 461 or permission of instructor.

**464-3 Microbiology of Food**
Principles of food microbiology, preservation, and handling. Major organisms of food poisoning and means of control are considered. Completion of a course in microbiology required.

**465-3 Ecological Genetics**
Concerned with the experimental study of evolution and adaptation that has been carried out by means of combined field work and laboratory genetics. Students are expected to have a basic knowledge of genetics and ecology. Prerequisite: BIO 302, 306.

**466-3 Occupational Health and Safety**
Introduction to accident recognition, evaluation, and control in the work environment. Emphasis on methods of hazard recognition and control management. Prerequisite: CHM 141, MTH 130.

**467-2 Occupational Health and Safety Lab**
Introduction to accident recognition, evaluation, and control in the work environment by hands-on equipment use. Methods of inspection, accident investigation, and evaluation of accident programs are stressed. Prerequisite: CHM 141, 211, 215; MTH 130.

**468-3 Industrial Hygiene I**
Introduction to industrial hygiene. Emphasis placed on routes of entry into the human body and physiological effects of industrial pollutants. Prerequisite: CHM 141, 211, 215; MTH 130.

**469-2 Industrial Hygiene I Lab**
Introduction to industrial hygiene. Methods of measuring toxic effects and providing adequate protection discussed and demonstrated. Prerequisite: CHM 141, 211, 215; MTH 130.

**470-3 General Entomology**
Basic study of morphology, physiology, habits, and classification of insects. Some discussion of pesticide toxicology and insect management included. Junior standing or permission of instructor required.

**471-2 General Entomology Laboratory**
Introduction to insect morphology, physiology, identification, and toxicology. Student collection and field trips required. Corequisite: BIO 470.

**473-5 Biology of Selected Marine Environments**
Biological aspects of marine environments. Sampling and observation of living marine specimens during weeklong trip to marine laboratory. A special fee is applicable. Application during winter quarter and permission of instructor required. Recommended preparation: invertebrate zoology.

**474-6 Ecological Physiology of Aquatic Animals**
Physical and chemical adjustment, tolerance, and acclimation of organisms to the aquatic habitat. 3 hours lecture, 6 hours lab. Recommended preparation: BIO 305, 411, or equivalent.

**476-2 Human Parasitology**
Medical aspects of parasitology, such as pathology, symptomatology, diagnosis, and identification of parasites. Divided into three major categories: human protozoology, human helminthology, and human arthropodology. Intended for medical technologists, biology teachers, and environmental health students. Junior standing or permission of instructor required.
477-3 Human Parasitology Laboratory
Examination and identification of protozoan, helminthic, and arthropod parasites of man. Junior standing or permission of instructor required. Corequisite: BIO 476.

478-4 Animal Behavior
(Listed jointly with Department of Psychology; see PSY 478.) Physiology, phylogeny, and ontogeny of behavior. 3 hours lecture, 2 hours lab, discussion. Prerequisite: PSY 111, 112, or BIO 111, 112, 114, 305.

480-5 Biology of Fishes
Introduction to the evolution, ecology, and distribution of freshwater and marine fishes. 3 hours lecture, 4 hours lab, field trips. A special fee is applicable. Junior standing required. Prerequisite: BIO 206, 306 or permission of instructor.

484-3 Introduction to Biogeography
(Listed jointly with Department of Geography; see GEO 484.) Introduction to the factors affecting the distribution of plants and animals. Prerequisite: BIO 111, 112, 306 or permission of instructor.

488-1 Independent Reading
Graded pass/unsatisfactory. A maximum of seven credit hours from either BIO 488 or 499 or both can be applied to Area F requirement for biology majors. Junior standing and departmental approval required.

495-1 to 5 Senior Honors Research
Acceptance into biology honors program required.

499-1 to 3 Special Problems in Biology
A maximum of seven credit hours from either BIO 488 or 499 or both can be applied to Area F requirement for biology majors. Minimum 2.2 cumulative grade point average and departmental approval required.

Chemistry/CHM

101-4.5 Introduction to Chemistry
Historical approach to the fundamentals of chemistry, composition and structure, properties and transformations of matter. 3 hours lecture, 3 hours lab. For students with no previous chemistry. May be followed by CHM 102 or 121.

102-4.5 Elementary Organic Chemistry with Applications
An elementary discussion of the structure of hydrocarbons, organic functional groups, and a few selected reactions. 3 hours lecture, 3 hours lab. Prerequisite: CHM 101 or 121.

103-4.5 Men and Molecules–The Chemical Enterprise
Topical study of ways in which chemical principles are applied in the modern world; impact of chemistry on society. 3 hours lecture, 3 hours lab. Prerequisite: CHM 102 or 121.

121-5 Submicroscopic Chemistry
Structure and properties of atoms and molecules and the macroscopic consequences thereof. 3 hours lecture, 3 hours lab, 1 hour recitation. Prerequisite: CHM 101, MTH 127; or equivalent.

122-5 Macroscopic Chemistry
Physical and chemical behavior of large collections of atoms and molecules. 3 hours lecture, 3 hours lab, 1 hour recitation. Prerequisite: CHM 121.

141-5 Quantitative Chemistry
Quantitative aspects of chemistry, emphasis on computational and experimental estimation of the composition of chemical systems. 3 hours lecture, 3 hours lab, 1 hour recitation. Prerequisite: CHM 122; MTH 127.

190-4, 191-4, 192-4 Cooperative Education I, II, III
Full-time work experience in a chemical science. Course requires planned learning objectives, work experience reports, and conferences with employer and faculty adviser. Topics vary from quarter to quarter. May be taken for letter grade or pass/unsatisfactory. Must be taken in sequence. Departmental approval required.

211-4 Organic Chemistry I
Principles, theories, and applications of the chemistry of carbon compounds. 3 hours lecture, 1 hour recitation. Prerequisite: CHM 141. Corequisite: CHM 215.

212-4 Organic Chemistry II
Principles, theories, and applications of the chemistry of carbon compounds. 3 hours lecture, 1 hour recitation. Prerequisite: CHM 211. Corequisite: CHM 216.

213-4 Organic Chemistry III
Principles, theories, and applications of the chemistry of carbon compounds. 3 hours lecture, 1 hour recitation. Prerequisite: CHM 212. Corequisite: CHM 217.

215-2 Organic Chemistry Laboratory I
Laboratory illustrations of CHM 211 lecture material and techniques of preparative organic chemistry. Prerequisite: CHM 141. Corequisite: CHM 211.
216-2 Organic Chemistry Laboratory II
Laboratory illustrations of CHM 212 lecture material and techniques of preparative organic chemistry. Prerequisite: CHM 215.
Corequisite: CHM 212.

217-2 Organic Chemistry Laboratory III
Laboratory illustrations of CHM 213 lecture material and techniques of preparative organic chemistry. Prerequisite: CHM 216.
Corequisite: CHM 213.

301-3 Philosophy of Chemistry
An upper-level course for nonscience majors who wish to learn about chemistry from a philosophical and humanistic viewpoint. Junior or senior standing and permission of instructor required.

311-7.5 Qualitative Organic Analysis
Systematic classification and identification of organic compounds by chemical and instrumental methods. 3 hours lecture, 9 hours lab. Prerequisite: CHM 213, 217.

312-3 Quantitative Analysis
Introduction to chemical methods of analysis covering traditional as well as modern techniques and equipment; emphasis on calculations and the interpretation of analytical data. Prerequisite: CHM 141. Corequisite: CHM 314.

313-3 Instrumental Analysis
Introduction to the theory and practice of modern chemical instrumentation. Elementary electronics, spectrophotometry, atomic absorption, electrochemical techniques, chromatography, and other instrumental techniques. Prerequisite: CHM 312, 452. Corequisite: CHM 315.

314-4.5 Quantitative Analysis Laboratory
Experimental methods of analysis. Practical applications of lecture material presented in CHM 312. Prerequisite: CHM 141. Corequisite: CHM 312.

315-4.5 Instrumental Analysis Laboratory
Introduction to experimental instrumental analysis. Practical experience in the operation of chemical instrumentation; emphasizes applications of material presented in CHM 313. Prerequisite: CHM 312, 452. Corequisite: CHM 313.

319-1 Chemical Literature
Introduction to chemical literature in journals, handbooks, abstracts, monographs, and patents. Literature searches required in a variety of chemical areas. Prerequisite: CHM 212, 451.

361-4 The Organic Chemistry of Engineering Materials
The molecular structure, stereochemistry, properties and reactivities of selected organic substances of industrial importance, including fuels, lubricants, solvents, coatings, plastics, dyes, and naturally occurring engineering materials. Not open to students with credit for CHM 212. Prerequisite: CHM 122.

390-4, 391-4, 392-4 Cooperative Education IV, V, VI
Full-time work experience in a chemical science. Course requires planned learning objectives, work experience reports, and conferences with employer and faculty adviser. Topics vary from quarter to quarter. May be taken for letter grade or pass/unsatisfactory. Must be taken in sequence. Departmental approval required. Prerequisite: CHM 192.

410-3.5 Environmental Chemistry I: Air
Study of earth's atmosphere, including its normal composition and atmospheric reactions; emphasis on nature, causes, effects, detection, and abatement of various types of air pollution. 2 hours lecture, 3 hours lab, or field project. Prerequisite: CHM 213, 312, or corequisite CHM 414.

411-3.5 Environmental Chemistry II: Water
Study of earth's fresh and saline water, including its normal composition and aquatic reactions; emphasis on nature, causes, effects, detection, and abatement of various types of water pollution. 2 hours lecture, 3 hours lab or field project. Prerequisite: CHM 213, 312; or corequisite CHM 415.

412-3.5 Environmental Chemistry III: Solids
Survey of problems of solid wastes, pesticides, food additives, and radioactive materials, including their chemical composition, effects, detection, disposal, and natural breakdown. 3 hours lecture, 1 hour lab or field project. Prerequisite: CHM 213, 312; or corequisite CHM 416.

414-1 Directed Study in Prerequisite Material for Environmental Chemistry I
Survey of topics in organic and analytical chemistry for students in CHM 410 who do not have previous knowledge of organic or analytical chemistry. Structure and reactions of selected compounds and principles of some analytical techniques briefly covered the week prior to their inclusion in Environmental Chemistry I. Not open to students with credit for CHM 213 and 312, or equivalent. Prerequisite: CHM 122. Corequisite: CHM 410.
415-1 Directed Study in Prerequisite Material for Environmental Chemistry II
Survey of topics in organic and analytical chemistry for students in CHM 411 who do not have previous knowledge of organic or analytical chemistry. Structure and reactions of selected compounds and principles of some analytical techniques briefly covered the week prior to their inclusion in Environmental Chemistry II. Not open to students with credit for CHM 213 and 312, or equivalent. Prerequisite: CHM 122. Corequisite: CHM 411.

416-1 Directed Study in Prerequisite Material for Environmental Chemistry III
Survey of topics in organic and analytical chemistry for students in CHM 412 who do not have previous knowledge of organic or analytical chemistry. Structure and reactions of selected compounds and principles of some analytical techniques briefly covered the week prior to their inclusion in Environmental Chemistry III. Not open to students with credit for CHM 213 and 312, or equivalent. Prerequisite: CHM 122. Corequisite: CHM 412.

420-3, 421-3 Inorganic Chemistry
Principles and concepts of inorganic chemistry, including the periodic table, atomic structure, chemical bonding, coordination compounds, and an introduction to group theory. Must be taken in sequence. Prerequisite: CHM 453 or permission of instructor.

440-3, 441-3 Synthetic Medicinal Chemistry I, II
A two-quarter course concerned with various chemical aspects of drugs including synthetic design, mode of action, and uses of various pharmaceuticals. Topics include cardiovascular agents, antibiotics, anti-tumor agents, and central nervous system drugs. Prerequisite: CHM 213.

443-3, 444-3 Chemical Toxicology I, II
Study of the basic principles of chemical toxicology. Chemicals which have the greatest incidence of abuse are discussed in detail with regard to their chemical-biological interactions, symptomatology of toxicity, clinical chemistry tests, and treatment.

446-3, 447-3 Clinical Chemistry I, II
Study of the basic principles of the chemistry of blood and urine. Analytical procedures and clinical significance of various test procedures are discussed with regard to aiding diagnosis of disease states. Prerequisite: CHM 213, 312.

451-3, 452-3, 453-3 Physical Chemistry
Theoretical aspects of chemistry including thermodynamics, chemical kinetics, molecular structure and spectra, and the structure of solids and liquids. Must be taken in sequence. Prerequisite: CHM 141, MTH 231, PHY 242 or permission of instructor.

456-4 Physical Chemistry for Nonchemists
Introduction for nonchemistry majors to the ideas of physical chemistry, including thermodynamics, properties of liquids and solids, solution properties, and kinetics. Intended for biologists, geologists, physicists, premedical students, and others with an interest in physical chemistry. Not open to chemistry majors. One year each of college chemistry and physics, and one quarter of calculus required.

457-2 Physical Chemistry Laboratory I
Experimental methods of physical chemistry. Corequisite: CHM 452.

458-2 Physical Chemistry Laboratory II
Experimental methods of physical chemistry. Corequisite: CHM 453.

465-3 Introduction to Polymer Science I
Introduction to the structural and physical aspects of macromolecules; emphasis on the relationship of polymer structure to physical and mechanical properties. Prerequisite: CHM 213 or 361. Corequisite: CHM 467.

466-3 Introduction to Polymer Science II
Step-growth and chain-growth polymerization in homogeneous and heterogeneous media; properties of commercial polymers. Prerequisite: CHM 213 or 361. Corequisite: CHM 468.

467-1 to 2 Introduction to Polymer Science Laboratory I
Laboratory illustrations of CHM 465 lecture material and techniques of polymer science. Corequisite: CHM 465.

468-1 to 2 Introduction to Polymer Science Laboratory II
Laboratory illustrations of CHM 466 lecture material and techniques of polymer science. Corequisite: CHM 466.

469-4 Engineering Plastics: Materials, Processes, and Design
(Listed jointly with Department of Engineering; see EGR 489.) Properties and manufacturing processes of engineering plastics and effect of these factors on plastics design. Illustrative laboratory projects are included. 2 hours lecture, 4 hours lab. Prerequisite: CHM 465.

479-4 Materials Corrosion
(Listed jointly with Department of Engineering; see EGR 479.) Survey of principles of corrosion processes with application to metallic and nonmetallic materials. Principles of electrochemistry are included. Prerequisite: EGR 315, 370; or corequisite CHM 453; or permission of instructor.
### Classics/CLS
Courses under this heading do not require knowledge of Greek or Latin.

**100-4 Latin and Greek Roots in English**
Builds English vocabulary through a study of Latin and Greek roots. Emphasis on words used commonly in higher education rather than on specialized terminology.

**101-4 Medical and Scientific Terminology**
Spelling, recognition, and understanding of that portion of contemporary specialized vocabulary which is based on the Latin and Greek languages. Emphasis on terminology of the medical sciences.

**111-4 Introduction to the Classical Humanities**
A survey of the development of classical culture from prehistoric Greece to the fall of the Roman Empire. A broad view of the interrelated political, economic, and social conditions, the philosophy, religion, mythology, literature, art, and architecture.

**112-4 Classical Greek Literature and Culture**
The Greek experience in fifth and fourth centuries B.C., with emphasis on Athenian democracy and the Golden Age of Athens: drama, history, oratory, and philosophy.

**113-4 Latin Literature and Roman Culture**
Emphasis on Late Republic and Early Empire, particularly the Augustan Age. The idealism of Virgil and Lucretius; the realism of Cicero, Sallust, and Tacitus.

CLS 111 is strongly recommended, but not required, as a prerequisite for all advanced courses. COURSES 112 and 113 provide additional useful background. The following courses offer a variety of topics: they may be repeated for credit by number, although not by content. Students should consult the department for the scheduled subjects.

**112-4 Latin and Greek Roots in English**
Builds English vocabulary through a study of Latin and Greek roots. Emphasis on words used commonly in higher education rather than on specialized terminology.

**113-4 Latin Literature and Roman Culture**
Emphasis on Late Republic and Early Empire, particularly the Augustan Age. The idealism of Virgil and Lucretius; the realism of Cicero, Sallust, and Tacitus.

**114-4 Introduction to the Classical Humanities**
A survey of the development of classical culture from prehistoric Greece to the fall of the Roman Empire. A broad view of the interrelated political, economic, and social conditions, the philosophy, religion, mythology, literature, art, and architecture.

**115-4 Classical Greek Literature and Culture**
The Greek experience in fifth and fourth centuries B.C., with emphasis on Athenian democracy and the Golden Age of Athens: drama, history, oratory, and philosophy.

**116-4 Latin Literature and Roman Culture**
Emphasis on Late Republic and Early Empire, particularly the Augustan Age. The idealism of Virgil and Lucretius; the realism of Cicero, Sallust, and Tacitus.

### Communication/COM

**101-3 Essentials of Public Address**
Fundamentals of verbal and nonverbal communication in platform speaking. Discussion and practice in vocal and physical delivery and in purposeful organization and development of a speech.

**102-3 Essentials of Interpersonal Communication**
Introduction to intrapersonal and interpersonal communication processes as they affect communication style and competence. Emphasis is on a holistic approach to communication by analyzing experiences, behaviors, and skills.

**103-4 Communication for Teachers**
Principles and practice of oral communication in discussion, reading aloud, storytelling, and public speaking. Enrollment limited to elementary education majors.
104-2 Effective Career Planning
Assists students to develop academic major and career goals through identifying skills and interests and then researching appropriate options.

111-4 Oral Interpretation
Introduction to the oral experience of literature. Theory and technique of oral reading. Frequent performances by students. Not open to students with credit for ENG 115.

128-4 Phonetics
Speech sounds of the English language; phonetic alphabet; introduction to dialects. Required of speech and hearing majors.

130-1 Introduction to Communication Activities
Research, practice, and participation in communication activities. Includes intercollegiate forensic activities, the departmental speakers' bureau, and individual communication assignments. Cannot be taken concurrently with COM 330. Permission of instructor required.

133-2 Parliamentary Procedure
Theory and practice in parliamentary procedure including creation of a class organization and construction of a constitution. Practice in framing and debating proposals.

141-3 Small Group Communication
Theory and practice in small group communication with projects in definition, analysis, research, organization, logical processes, and leadership. Recommended for business and professional students and prospective teachers. Lecture, recitation.

151-4 Introduction to Broadcasting
Fundamentals of broadcasting, including the development of and use of equipment, and practice in effective radio and television speaking.

203-3 Business Communication
Interorganizational communication skills for job interviewing, persuasive proposals, departmental meetings, oral report presentations, and job appraisals are experienced along with employee communications to accomplish job tasks.

205-4 Speech Development and Disorders
Development of normal speech, disorders of speech, special problems of speech-handicapped persons, speech therapy and the therapist. Required of speech and hearing majors; recommended for secondary education majors.

221-2 Voice and Articulation
Development of heightened speech effectiveness for students planning work in professions requiring special speech skills (acting, radio, TV). Offered alternate years.

223-4 Physiology of Speech I
Study of anatomical and physiological bases of speech. Prerequisite: COM 128, 205.

224-4 Physiology of Speech II
Study of the neurological basis of speech. Prerequisite: COM 223.

228-4 Speech Science
Analysis of processes involved in production and reception of speech. Prerequisite: COM 128.

232-4 Argumentation and Debate
Projects in analysis, research, briefing, ordering of arguments and evidence, refutation, audience evaluation, argumentative composition, and delivery. Recommended for prospective lawyers, business and professional students, and teachers of speech. Prerequisite: COM 101 or permission of instructor.

233-4 Persuasion

252-4 Mass Communication
Study of the types, functions, and impact of the various mass communication media.

254-4 Introduction to Journalism
Overview of the role of the press in American society with special emphasis on print media. Topics include the press, government, and the First Amendment.

256-4 Basic News Writing
Introduction to writing for print media. Structure and organization of news stories. Course requires reporting in the field.

304-2 Implementing Career Decisions
Assists students in their career/job search. Through research, analysis, and structured exercises the participants learn effective job-seeking skills. Final results for the students should include discovering, exploring, and locating satisfying job situations. Permission of instructor required.

312-4 Oral Interpretation of Poetry
Advanced study of oral interpretation. Lectures, discussion, and frequent student performances that explore methods of analysis and communicative techniques for oral interpretation of modern poetry. Prerequisite: COM 111 or permission of instructor.

313-4 Oral Interpretation of Prose
Advanced study of oral interpretation. Lectures, discussion, and frequent student performances that explore methods of analysis and communicative techniques for oral interpretation of fiction. Prerequisite: COM 111 or permission of instructor.
321-4 Speech Pathology I
Survey of functional and psychogenic speech disorders. Prerequisite: COM 128, 205.

322-4 Speech Pathology II
Survey of organically based speech disorders. Prerequisite: COM 321.

324-4 Audiology
Acquaints students with the science of hearing. Prerequisite: COM 205.

325-4 Auditory Disorders and Testing
Trains students to test the hearing function. Prerequisite: COM 324.

330-1 Advanced Communication Activities
Research, practice, and participation in tournaments, forums, symposia, exhibition speaking, or an oral communication project designed to meet the interest of the individual student. Cannot be taken concurrently with COM 130. Permission of instructor required.

331-4 Rhetorical Criticism

332-4 Rhetorical Approaches to Public Communication I
Study of significant American speakers to 1865, emphasizing their rhetorical training, delivery style, and major public addresses on selected occasions. Prerequisite: COM 331 or permission of instructor.

333-4 Rhetorical Approaches to Public Communication II
Study of significant American speakers from 1865 to the present, emphasizing their rhetorical training, delivery style, and major public addresses on selected occasions. Prerequisite: COM 332 or permission of instructor.

335-4 Classical Rhetorical Theory
Survey of rhetorical theory in the Greek and Roman world. Emphasis on selected works of Plato, Aristotle, Socrates, Cicero, and Quintilian. Prerequisite: COM 101 or permission of instructor.

337-4 Modern Rhetorical Theory
Survey of modern and contemporary rhetoric including works of Campbell, Blair, Whately, Burke, Richards, and McLuhan. Prerequisite: COM 101 or permission of instructor.

343-4 Communication and Human Relations
Focuses on the need for both personal and professional communication skills. Examines how communication enhances relationships between people, leading to healthy social transactions and productive work situations. Prerequisite: COM 102 or permission of instructor.

345-4 Public Relations: Principles and Practices
A simulation which focuses on the processes of a public-relations campaign: fact finding, action planning, implementation of communication channels, and program evaluation. Experiences focus on one internal and one external campaign for each student. Prerequisite: COM 203.

349-4 Marital Communication: Functional Discourse in a Permanent Relationship
An exploration of the role that communication plays in marital relationships. Prerequisite: COM 102 or permission of instructor.

360-4 Broadcast Journalism
Examination of broadcast news with special attention given to coverage, selection, and reporting of the news. Prerequisite: COM 256 or permission of instructor.

362-4 Broadcast Criticism
Analysis of contemporary programming and production practices including the development of critical standards for evaluation. Prerequisite: COM 151 or permission of instructor.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of speech.

421-4 Language Development
Development of speech and language in the preschool years. Junior standing required. Prerequisite: COM 205.

422-4 Language Disorders
Diagnosis and treatment of language disorders in children and adults. Emphasis on research in language problems of the mentally retarded, emotionally disturbed, and language-delayed child and adult.

429-4 Urban Communications Theory
Processes and institutions by which individuals and groups communicate in an urban environment. Model of an urban communication system developed by interdisciplinary systems approach.

430-4 Directing the Forensic Program
Intensive study of the administration, coaching, and teaching of high school and college forensics.

432-4 Female/Male Communication
A comparison and contrast of the communicative modes of women and men with a study of how to improve these transactions.

439-4 Freedom of Speech
Study of the growth and development of free speech in the United States. Special attention given to the development of definitions of free speech and various communication strategies in different settings. Prerequisite: COM 101 or permission of instructor.
441-4 **Advanced Interpersonal Communication**  
An in-depth view of interpersonal communication skills; presenting, receiving, and challenging. A group context is used to promote self-directed changes in interpersonal style. Prerequisite: COM 102 or 203, or permission of instructor.

443-4 **Interviewing**  
Through a matrix organizational structure, students experience theory in selection, survey, journalistic, performance appraisal, persuasion, and counseling interviewing situations with the focus on human resource development. Prerequisite: COM 203.

445-4 **Conference Leadership**  
A simulation which focuses on the creation, development, and execution of a professional conference through assessment of participants' needs. Experiences include completing group tasks through assigned roles developed from current leadership theories. Prerequisite: COM 203 or permission of instructor.

447-4 **Organizational Communication**  
A simulation which focuses on the creation of an organizational product, philosophy, and environment within a designated organizational structure. Experiences include development of communication channels, networks, roles, and climate based on current communication theory. Prerequisite: COM 203 or permission of instructor.

449-4 **Survey of Communication Methods**  
Provides a basic knowledge of the behavioral approach and current theories and experiments in communications research. Prerequisite: COM 233, 441, or permission of instructor.

451-4 **Communication Consulting and Training**  
By means of a matrix structure, consulting and training theories are experienced in communication programs and processes as a methodology for human resource development within organizations. Prerequisite: COM 203, 447, or permission of instructor.

453-4 **Communication and Conflict**  
In-depth study of the function of communication in conflict/crisis situations. Special attention given to the role that communication performs in conflict resolution in intrapersonal, interpersonal, group, and international situations.

454-4 **Feature Story Writing**  
Finding, writing, polishing, and marketing feature material. Prerequisite: COM 256 or permission of instructor.

455-4 **Nonverbal Communication**  
Theory, survey of research, and experiential learning in nonverbal communication. Exploration of types and forms and of methods of sending and receiving nonverbal communication. Prerequisite: COM 102 or 141.

458-4 **Editing for the Media**  
Editing of copy for mass media with special emphasis on newspaper format, headline writing, rewriting, and general copy desk. Prerequisite: COM 256 or permission of instructor.

460-4 **Broadcast Programming and Management**  
Purpose, function, structure, and programming of broadcasting organizations. Prerequisite: COM 151 or permission of instructor.

462-4 **Mass Media: Law and Regulation**  
Study of laws and regulations affecting mass media. Prerequisite: COM 151 or permission of instructor.

471-4 **Topics in Communication**  
Examination of special topics in the various areas of speech communication. May be repeated with different titles.

481-2 to 3 **Independent Study**  
Faculty-directed readings and research. Junior or senior standing, 3.0 grade point average in major, and permission of instructor and department chair prior to registration required.

482-1 to 4 **Senior Honors Project**  
Independent studies course for students accepted into the speech communication honors program. Course allows students to pursue research that culminates in a senior honors thesis or project. Completion of nine credit hours of communication honors courses required.

491-1 **Communication Techniques and Evaluation**  
The philosophy and techniques of conducting communication events. Includes the planning, initiating, and summarizing of communication activities, and evaluating written and oral performance. May be repeated to a maximum of three credit hours. Permission of instructor required.

**Comparative Literature/CPL**  

201-4, 202-4, 203-4 **Masterpieces of Western Literature**  
Comparative study and analysis of chronologically selected works from the literatures of the Western World. 201: Ancient World and Middle Ages. 202: Renaissance and Neoclassicism. 203: Romanticism to the Modern Period.
210-4 Problems in Comparative Literature
Readings in comparative literature dealing with themes, myths, genres, literary movements, or characters; e.g., the myth of Electra in the modern theatre, the Picaresque novel, Existentialism in European fiction, and the ambitious hero in literature.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of comparative literature.

405-4 Theory of Comparative Literature
History and development of comparative literature as a discipline: study of basic reference works and journals; papers and reports based on comparative studies. Junior standing or permission of instructor required.

Computer Engineering/CEG

260-4 Digital Computer Hardware/Switching Circuits
(Listed jointly with Department of Engineering; see EGR 450.) Provides computer scientists, engineers, and other computer users with terminology and understanding of physical components used in computer hardware. Topics include switching algebra and switching functions, logic design of combinational and sequential circuits using TTL, combinational logic design with MSI and LSI, busing, storage elements and instrumentation. 3 hours lecture, 2 hours lab. Prerequisite: CS 142.

320-4 Computer Organization
Provides computer scientists, engineers, and other computer users with terminology and understanding of functional organizations and sequential operation of a digital computer. Introduction to program structure, machine and assembly language, stored programs, computer arithmetic, input-output, peripherals, and interfaces. Computer description using a register transfer computer design language. 3 hours lecture, 2 hours lab. Prerequisite: CEG 260, CS 146.

360-4 Digital System Design
(Listed jointly with Department of Engineering; see EGR 451.) Design of digital systems. Topics include flip-flops, timers, registers, digital arithmetic, register-level design, memory devices and their logic, controller and processor design, computer logic design, and microcomputer system design. Students must show competency in the design of digital systems. 3 hours lecture, 2 hours lab. Prerequisite: CEG 260.

391-4 Introduction to Data Communication
Principles of digital communication discussed from a conceptual point of view with an elementary survey of theoretical aspects.

Trends analyzed in the context of competing technologies, changing needs, and emerging new technologies.

392-4 Use of Microprocessors
Introduction to the design and development of software and computer interfacing hardware for effective utilization of microprocessors in process control, data collecting, and other special purpose computing systems. Software topics include loaders, assembly language programming, input/output, interrupts, and timing problems. 3 hours lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Computer science majors may not take course for credit.

399-1 to 5 Selected Topics
Topics vary from quarter to quarter. May be taken for letter grade or pass/unsatisfactory.

402-4 Introduction to Computer Communication Design
Survey of modern digital communications techniques. Specific focus on serial transmission over public communications channels. Topics include information content and coding, asynchronous and synchronous formats, concentrating and multiplexing, channel properties, modulation techniques, common carrier services, error sources and control, regulatory policies, network, and their analyses. Students must design both hardware and software components of computer communications systems. 3 hours lecture, 2 hours lab. Knowledge of FORTRAN required. Prerequisite: CEG 360.

421-4 Microcomputer Design Projects
An in-depth study of the design and use of microcomputer systems. Computer organization and interface facilities are examined. Hardware/software projects are required to develop techniques for hardware and software design of open-ended projects. 3 hours lecture, 2 hours lab. Prerequisite: CEG 360, 430.

430-4 Assembly Language Programming
Use of an operating system: its file structure, utilities, editor, assemblers, and linker to construct programs. Assembler topics include addressing, stacks and argument passing, arithmetic operations, input/output, traps, and macros. 3 hours lecture, 2 hours lab. Prerequisite: CEG 320, CS 400.

431-4 Real-Time Software Design
Concurrent programming, concurrency, processes, synchronization. Concepts are used together with interrupts to construct the kernel of an operating system and concurrent processes for I/O and user programs. Students must show competency in the design of real-time multitasking software. 3 hours lecture, 2 hours lab. Prerequisite: CEG 430.
453-4 Design of Computing Systems
Laboratory projects combine engineering hardware and computer science software concepts in the design and implementation of small special purpose computer systems. 3 hours lecture, 2 hours lab. Prerequisite: CEG 360, 430.

456-4 Introduction to Robotics
(Listed jointly with Department of Engineering; see EGR 456.) Introduction to the mathematics, programming, and control of robots. Topics include coordinate systems and transformations, kinematic equations, trajectory planning, dynamics, control, programming, and computer vision. Senior standing in computer engineering, computer science, or engineering, and permission of instructor required. Prerequisite: MTH 233.

476-4 Computer Graphics
(Listed jointly with Department of Mathematics and Statistics; see MTH 476.) Principles of computer graphics: representation of two- and three-dimensional space on a display. Data compression. Hidden surface problems: displays, input, graphics, software packages, real-time applications. Students must show ability to apply the concepts in the design of graphics software. 3 hours lecture, 2 hours lab. Prerequisite: CS 400, MTH 253.

477-4 Computer Graphics II
(Listed jointly with Department of Mathematics and Statistics; see MTH 477.) Continuation of CEG 476. Covers selected topics in detail, including hidden line and surface removal, shading models, curved surface generation, and color models. Students are expected to understand and implement sophisticated algorithms in these areas. Projects are individualized and creative. Selected papers are used for in-depth material. Emphasis is placed on the design of graphics systems. 3 hours lecture, 2 hours lab. Prerequisite: CEG 476.

499-1 to 5 Selected Topics
Topics vary from quarter to quarter. May be taken for letter grade or pass/unsatisfactory. Senior standing and permission of instructor required.

Computer Science/CS
141-4 Computer Programming I
Introduction to use of computers as a problem-solving tool. Examples from and applications to a broad range of problems. Methodology for algorithm design and for structured modular implementation is stressed. 3 hours lecture, 2 hours lab. Prerequisite: MTH 127 or at least Level 4 on math placement test.

142-4 Computer Programming II
Concepts introduced in CS 141 are developed in greater detail and depth. Emphasis is on verification and testing of programs. 3 hours lecture, 2 hours lab. Prerequisite: CS 141.

146-4 Introduction to Data Structures
Introduction to computer programming for computing majors. Topics include program design, style, debugging, and testing, especially for larger programs; algorithmic analysis; and basic aspects of string processing, recursion, internal search/sort methods, and simple data structure. 3 hours lecture, 2 hours lab. Prerequisite: CS 142.

200-3 COBOL for Nonprogrammers
Data processing with the COBOL language. Report preparation; data organization; procedure specification; table handling; program design and documentation; debugging techniques. Not for students who intend to become programmers. Computer science majors may not take course for credit. Prerequisite: CS 141 or AIS 103.

210-3 Introduction to FORTRAN for Engineers
Introduction to digital computers and computer programming with FORTRAN language. Algorithms and techniques useful to engineers. Data representation, debugging, and program verification. Programming assignments include solution of simultaneous equations, zeros of transcendental equations, numerical integration and differentiation, matrix operations, and complex arithmetic. Prerequisite: MTH 132.

300-4, 301-4 COBOL Programming I, II
Elements of COBOL language; techniques for debugging and interpreting computer output; linkage to subroutines and overlays; file structure involving both sequential and random access; case studies with business applications. 3 hours lecture, 2 hours lab. Prerequisite: for 300, CS 142; for 301, CS 300.

310-4 Assembly Language Programming—System 360/370
Thorough study of the basic assembly language of the system 360/370. Constant definition, conversions, moves, transfer of control and address manipulation, data manipulation, floating point and decimal modes, dumps, macros, conditional assemblies, and DCBs. Prerequisite: CEG 320.

315-2 Job Control Language
Introduces system 370 job control language. Studies the various JCL statements. Programming exercises are assigned to give students the practical experience needed to create and run various jobs. Prerequisite: CS 300.
316-4, 317-4 Numerical Methods for Digital Computers
Introduction to numerical methods used in the sciences. Methods of interpolation, data smoothing, functional approximation, integration, solutions of systems of equations, and solutions of ordinary differential equations. 3 hours lecture, 2 hours lab. Prerequisite: for 316, CS 142 or 210, MTH 231, MTH 253 or 355; for 317, CS 316, MTH 233.

340-1 Programming Language Workshop
Self-directed study in particular computer languages. Individual workshops are offered in significant languages such as COBOL, PL/1, SNOBOL, LISP, SIMSCRIPT, and GPSS. The actual list varies depending on curricular needs and professional significance. Prerequisite: CS 400 or permission of instructor.

393-4 Assembly Language Programming-System 360/370
Topics include elements of machine language and assembly language, constant definition, data conversion, data moves and manipulations, transfer of control and address modification, memory dumps and program debugging, data set definitions and usage, conditional assemblies, and executing and translating instructions. 3 hours lecture, 2 hours lab. Computer science majors may not take course for credit. Knowledge of FORTRAN or COBOL required.

399-1 to 5 Selected Topics
Selected topics in computer science. May be taken for letter grade or pass/unsatisfactory. May be repeated. Permission of instructor required.

400-4 Data Structures and Software Design
Study of the implementation of data structures and control structures in professional computer programs. Introduction to the fundamentals of complexity and analysis. Study of common standard problems and solutions, e.g., transitive closure and critical path. Emphasis is on high-level language software design. 3 hours lecture, 2 hours lab. Prerequisite: CS 146 and completion of a calculus course; or permission of instructor required.

405-4 Introduction to Data Base Management Systems
A survey of logical and physical aspects of data base management systems. Hierarchical, network, and relational models of a data base are presented. Physical implementation methods are discussed. Experience in creating and manipulating a data base. Students must show ability to apply the concepts in the design of data base systems. 3 hours lecture, 2 hours lab. Prerequisite: CS 400.

407-3 Optimization Techniques
(Listed jointly with Departments of Engineering, and Mathematics and Statistics; see EGR 407, MTH 407.) Concepts of minima and maxima: linear programming; simplex method, sensitivity, and duality; transportation and assignment problems; dynamic programming. Prerequisite: MTH 233, 253 or 355.

410-4 Theoretical Foundations of Computing
(Listed jointly with Department of Mathematics and Statistics; see MTH 410.) Considers the various responses to the question of "effective procedure" or "algorithmic method." When does there exist an effective procedure for generating answers to a collection of questions? The following approaches are presented: Turing machines, Markov algorithms, recursive functions, and the methods of Kleene and Post. Other topics include Church’s hypothesis, the halting problem and similar decision problems, recursive and recursively enumerable sets. At least one 300-level mathematics course required. 3 hours lecture, 2 hours lab. Prerequisite: CS 142 and completion of a 400-level math course; or CS 400 and successful completion of at least one 300-level math or statistics course; or CS 433, CEG 320.

433-4 Operating Systems
The role of resource allocation in general computer systems. The problems, techniques, and concepts that arise in multitasking, multiprogram, and multiprocessing systems are emphasized. Students must show ability to apply the concepts in the design of operating systems. 3 hours lecture, 2 hours lab. Corequisite: CEG 431.

458-3 Applied Graph Theory
(Listed jointly with Department of Mathematics and Statistics; see MTH 458.) Introduction to methods, results, and algorithms from graph theory. Emphasis on graphs as mathematical models applicable to organizational and industrial situations. Prerequisite: CS 142, MTH 231.

466-4 Introduction to Formal Languages
Introduction to the theory and application of formal languages. Emphasis is on those classes of languages commonly encountered by computer scientists (e.g., regular and context-free languages). 3 hours lecture, 2 hours lab. Prerequisite: CS 400 or completion of a 300-level math or statistics course.

470-4 Systems Simulation
Introduction to simulation and comparison with other techniques. Discrete simulation models.
170 Courses/Computer Science

Introduction to queuing theory and stochastic processes. Comparison of simulation languages. Simulation methodology and selected applications. Students must show ability to solve problems using simulation techniques. 3 hours lecture, 2 hours lab. Prerequisite: CS 400, STT 360.

480-4 Comparative Languages
Basic concepts and special purpose facilities in programming languages, examined through several representative languages. 3 hours lecture, 2 hours lab. Prerequisite: CS 400.

499-1 to 5 Selected Topics
Selected topics in computer science. May be repeated. Senior standing and permission of instructor required.

Cooperative Education/CPE
001-0 Cooperative Education
Participation in cooperative education. Departmental approval required.

091-2 to 4, 092-2 to 4, 093-2 to 4, 094-2 to 4 Cooperative Education I, II, III, IV
University-sponsored learning experience in a work setting related to student's academic or career interests. Approved learning objectives, oral and/or written reports, employer evaluation, and final conference with co-op coordinator are required. Cannot be applied toward graduation requirements.

095-2 to 4, 096-2 to 4, 097-2 to 4, 098-2 to 4 Cooperative Education V, VI, VII, VIII
University-sponsored learning experience in a work setting related to student's academic or career interests. Approved learning objectives, oral and/or written reports, employer evaluation, and final conference with co-op coordinator are required. Cannot be applied toward graduation requirements.

Dance/DAN
101-3, 102-3, 103-3 Ballet I
Introduction to vocabulary, techniques, and theories of ballet. Emphasis placed on body alignment and effective methods for gaining strength and flexibility necessary for proper ballet training. Must be taken in sequence.

111-3, 112-3, 113-3 Modern Dance I
Introduction to fundamentals of modern dance and a survey of dance through the ages. Must be taken in sequence.

151-2 Social Dance I
Basic social dances, dance vocabulary, and historical development through group participation sessions and lectures. Required of dance majors; highly recommended for acting majors.

152-2 Folk Dance I
Traditional folk dance forms through style analysis, group participation, and development of a dance vocabulary. Required for dance majors; highly recommended for acting majors.

201-3, 202-3, 203-3 Ballet II
Development of the vocabulary, techniques, and theory of ballet. Emphasis is placed on body alignment and flexibility. Must be taken in sequence. Required of dance majors. Prerequisite: for 201, DAN 103; for 202, DAN 201; for 203, DAN 202.

211-3, 212-3, 213-3 Modern Dance II
Further development in modern dance techniques and theories. 211: emphasis on modern dance. 212: jazz. 213: musical comedy dance. Must be taken in sequence. Prerequisite: for 211, DAN 113.
231-3 **Dance Improvisation**  
Spontaneous dance work, usually within a structure, to discover new solutions to movement problems and/or new aspects of techniques or composition. Prerequisite: DAN 113.

232-3 **Dance Composition**  
Study of the fundamentals of design as applied to dance. Exploration of the manipulation of movement, space, time, and energy as a preparation for choreography. Prerequisite: DAN 231.

260-3, 261-3 **Dance History**  
Study of the vital role dance has played in cultural developments from primitive times to the twentieth century. Must be taken in sequence. Prerequisite: for 260, DAN 113.

301-3, 302-3, 303-3 **Ballet III**  
Development of the vocabulary, techniques, and theory of ballet. Emphasis placed on body alignment and flexibility. Must be taken in sequence. Required of dance majors. Prerequisite: for 301, DAN 203; for 302, DAN 301; for 303, DAN 302.

311-3, 312-3, 313-3 **Modern Dance III**  
Third year modern dance techniques and theory. Must be taken in sequence. Prerequisite: for 311, DAN 213.

331-3 **Rhythmic Accompaniment for Dance**  
The use of percussion instruments for dance class accompaniment. Prerequisite: DAN 213.

332-3 **Techniques of Teaching Dance**  
Approaches and methods for teaching dance at the college level. Prerequisite: DAN 213.

333-3 **Creative Dance for Children**  
Utilizing functional movement experiences, this course focuses on creative expression and its relationship to the aesthetic development of the young child. Prerequisite: DAN 213.

399-1 to 4 **Studies in Selected Subjects**  
Course of variable content dealing with problems, approaches, and topics in the field of dance.

411-3, 412-3, 413-3 **Modern Dance IV**  
Advanced work in dance technique and theory. Must be taken in sequence. Prerequisite: for 411, DAN 313.

465-3 **Choreography**  
Application of the fundamentals of dance composition to choreographic projects by exploring, analyzing, and experimenting with problems in dance performance and production. Prerequisite: DAN 231, 232.

466-3 **Philosophy of Dance**  
Lectures and group discussions on dance theories and philosophies. Prerequisite: DAN 312.

481-1 to 3 **Independent Study**  
Independent study for dance majors who seek advanced work in either dance research or creative projects. Prerequisite: DAN 313.

**Danish/DN**

111-4 **Essentials of Danish**  
Introduction to Danish with an emphasis on speaking the language.

**Developmental Education**  
See Study Skills

**Economics/EC**

201-3, 202-3, 203-3 **Principles of Economics**  
Fundamental economic principles as an aid in understanding modern society. 201: Introduction to economics; 202: Microeconomics; 203: Macroeconomics. Prerequisite: for EC 202 and 203, EC 201.

300-3 **Consumer Economics**  
Understanding the economic world in which the consumer lives, works, spends, saves, and frequently, invests, is stressed. Enrollment limited to education majors. Cannot be substituted for any other economics requirements.

330-3 **Urban Economic Problems and Prospects**  
Analysis of economic processes that influence urban economic conditions, population movements, economic problems facing metropolitan areas, and alternative problem-solving techniques. Junior standing required.

**Advanced Courses**

All courses listed below require junior standing, in addition to the listed prerequisites.

301-3 **Money and Banking**  
Analysis of behavior and significance of money, credit, debt, and the banking system.

315-4 **Intermediate Microeconomics**  
Develops the analytical tools of microeconomics, stressing market behavior of firms, industries, and consumers. The production process and operation of market mechanisms. Policy implications are emphasized.

316-4 **Economic Behavior and Sociopolitical Institutions**  
Focuses on interrelationships between market and nonmarket forces, exploring contemporary social, technological, political, and other influences on resource allocation decisions and on economic change.
172 Courses/Economics

317-4 Intermediate Macroeconomics
Analysis of national economic problems including inflation, unemployment, interest rates, and economic stability. Emphasizes the impact of public policy.

321-3 Evolution of Capitalist and Other Industrialized Societies
Analysis of economic, political, social, and cultural changes resulting from industrial advance and the control over industrial change exercised by different societies.

326-3 Economics of Poverty and Discrimination
Analysis of economic causes, effects, and cures for poverty and discrimination. Study of trends, economic explanations, and current programs and legislation. Cannot be substituted for EC 201, 202 or 203. Prerequisite: EC 201 or permission of instructor.

340-3 Comparative Economic Systems
Comparison of chief characteristics of capitalism, communism, socialism, and facism to clarify the economic process in a free-enterprise society.

351-3 Labor Markets and Unions
The determinants of labor market behavior, wages, employment, unemployment. The role of public policy, collective bargaining, and union behavior.

352-3 Labor Legislation
Public policy with respect to protective and labor management legislation. Prerequisite: EC 351 or permission of instructor.

354-3 Manpower Analysis and Planning
Application of statistical and manpower tools to human capital development, structural change, planning, training, placement, income maintenance, supporting services, and public policy.

370-3 Environmental Economics
Analysis of the economics of water, air, and noise pollution, pesticide use, solid waste disposal, and land use practices. Emphasis on the effectiveness of regulation, prohibition, and zoning as well as subsidies and effluent charges as methods to combat environmental problems. Relationship between environmental decay and over-population, over-urbanization, and economic growth covered. Prerequisite: EC 201, 202, 203, or permission of instructor.

401-3 Managerial Economics
Application of economic analysis to management decision making. Practical methods and problems are stressed.

402-3 Monetary Economics
Analysis of monetary policy development and the theory of money market behavior. Emphasizes the relationship between money and national economic conditions.

409-4 Applied Econometrics
Application of statistics and economic theory to measurement, forecasting, and other economic problems. College algebra and statistics or equivalent required.

410-4 Mathematical Economics
Application of mathematical tools in the formulation of economic theory. Methods used in model construction. College algebra or equivalent required.

412-3 Forecasting Economic Activities
Techniques and theories used in forecasting. Practical methods and problems are stressed. Prerequisite: EC 317 or equivalent.

425-4 Development of Economic Thought
Historical development of economic thought and philosophies.

428-3 Socialist and Radical Economics
Development of Marxian, socialist, and radical economic doctrine with emphasis on contemporary ideas and trends.

431-4 Federal Finance and the Economy
Analysis of federal government expenditures and taxation policies and the impact on economic conditions. Techniques for policy evaluation are discussed.

432-4 State and Local Finance and the Economy
Analysis of different taxation policies of state and local governments. Efficient methods of producing public goods such as education and public health services.

436-4 Transportation and Public Utility Economics
Institutions and analytics for examining national, regional, and local transportation economics and the economics of public utilities and regulated industries.

440-3 Regional Economic Growth and Change
Regional economic analysis in a policy and planning context. Interdisciplinary approach to analyze the economics of location, interregional trade, regional development, urban, regions, and growth strategies.

441-3 International Trade and the Economy
Economic reasons for international trade. Impact of trade and trade restrictions on economic aggregates.

442-3 International Monetary Theory and Problems
Studies international monetary relations and problems. Focus is on the institutions and arrangements used to finance international trade. Topics discussed include balance of payments, the dollar and foreign exchange markets, Euro currencies, Petrodollars and OPEC, and multinational corporations.
444-3 Economic Development and World Poverty
Economic development in less developed countries as it relates to population growth, cultural change, and industrialization.

454-3 Economics of Collective Bargaining
Development of collective bargaining in the United States; economic cost of labor-management relations. Prerequisite: EC 351 or permission of instructor.

477-3 Economic Studies
Examination of special economic issues. Permission of instructor required.

478-3 Honors: Independent Study in Economics
Research in economics for fulfillment of the Honors Program project requirement. Permission of department chair required.

480-3 Senior Seminar in Economics
Examination of selected economic issues with a view to integrating the discipline. Senior standing, major in economics, or permission of instructor required.

481-1 to 3, 482-1 to 3 Independent Reading
Limited to students with extensive backgrounds in economics or allied disciplines and with special reasons for in-depth study in a particular area. Permission of instructor and department chair required.

Education/ED

101-1 to 2 Interpersonal Process Learning Laboratory
Selection of courses to explore such areas as listening, communicating, life planning, sexuality, the helping relationship, with emphasis on interpersonal process.

211-1 to 2 Introduction to Education
Develops an understanding of legal and financial aspects, the organization and function of schools, and the rights and responsibilities of those involved in the educational process. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: ED 211, PSY 111. Corequisite: ED 214.

212-1 Self as Teacher
Analysis and evaluation of one's needs, beliefs, attitudes, values, goals, and performance skills as they relate to teaching behavior, professional requirements, community realities and pupil needs. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: PSY 111. Corequisite: ED 211.

213-1 Educational Problem Solving
Introduction for prospective teachers to the theory involved in problem solving. How to teach the problem solving approaches, apply the concept in the cognitive and affective domains, understand the relationship between theory and practical classroom strategies. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: ED 211, PSY 111. Corequisite: ED 214.

214-2 Foundations of Education
The interrelationship of social forces and education. The theoretical bases of philosophical, psychological, social, political, and economic issues in contemporary society and their application to the educational process and schooling. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: ED 211, PSY 111. Corequisite: ED 213.

215-3 Learning Theories
Designed to afford prospective teachers the beginning skills necessary to apply learning theory and research to the instructional process, and design preventive and remedial strategies relative to student behavior. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: ED 211, PSY 111.

216-2 Teaching in a Pluralistic/Multicultural Society
Designed to help teachers and other professionals to develop an understanding of and skills to work with learners from various socio-economic, racial, and religious environments. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: PSY 111. Prerequisite or corequisite: ED 211.
Courses/Education

217-2 Introduction to Classroom Management
Designed to afford prospective teachers the beginning skills necessary to maintain a classroom environment that is optimal for learning. Participation experience required during enrollment in course. Admission to College of Education and Human Services or completion of twenty-four credit hours and a 2.25 cumulative grade point average required. Prerequisite: ED 211. PSY 111. Prerequisite or corequisite: ED 215.

219-1 to 8 Assistant Teacher in the Public Schools
Supervised experience in which the student assumes a position as a member of an instructional team to perform such functions as preparing instructional materials, routine managerial tasks, supervising playground, lunch room, bus activities, and working with small groups of pupils. Approval of College of Education and Human Services required.

221-0 Field/Clinical I
Forty hours of field/clinical experiences in which students are introduced to the educational process through participation in a classroom and through an examination of the dynamics of that classroom and its setting. Corequisite: ED 211, 212, 216; or permission of Phase I coordinator.

222-0 Field/Clinical II
Forty hours of field/clinical experiences in which students apply problem-solving strategies to an examination of philosophical, social, political, and economic problems and issues which affect the educational system. Prerequisite: ED 211, 212, 216, 221; or equivalent. Corequisite: ED 213, 214; or permission of Phase I coordinator.

223-0 Field/Clinical III
Forty hours of field/clinical experiences in which students apply knowledge of learning theory and management strategy to their interaction with students. Prerequisite: ED 211, 212, 216, 221; or equivalent. Corequisite: ED 215, 217; or permission of Phase I coordinator.

241-3, 242-3, 243-3 Physical Science
Content of the physical sciences integrated to promote understanding of and intelligent interaction with physical aspects of environment. 3 hours lecture, 1 hour lab. Lecture and lab must be taken concurrently. Prerequisite: for 242, ED 241 or permission of instructor; for 243, ED 242 or permission of instructor.

302-3 Classroom Management
Provides prospective teachers with various strategies used to effectively manage a classroom. Emphasis on a preventive approach. One half-day per week participation experience required during enrollment in course. Prerequisite: PSY 111, ED 211 through 217 or equivalent, or permission of instructor.

310-3 Effective Parenting
Assists parents and prospective parents in understanding their child's physical, social, intellectual, and educational development. Consideration given to growth and development patterns, communication with children, discipline, management, child's relationship with the family, and strategies for creating an optimum educational environment.

311-3 Elementary School Science: Curriculum and Materials
Study of basic principles, methods, curriculum trends, and material; individual laboratory work. Participation experiences required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Minimum of eleven credit hours in science including ED 241 or permission of instructor required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

315-3 Elementary School Children's Literature: Curriculum and Materials
Introduction to children's literature. Wide reading of children's books with emphasis on selection and use of books and related activities in the elementary school. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217. Corequisite: ED 327 or 326 or 329.

316-3 Elementary School Language Arts: Curriculum and Materials
Language and communication in elementary school, including practices and materials used in teaching oral and written communication. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 315 or equivalent. Corequisite: ED 327 or 328 or 329.

317-3 Elementary School Reading: Curriculum and Materials
Practices and materials used in the teaching of reading and related skills in the elementary school. One half-day participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 315, 316, or equivalent.
318-3 Elementary School Mathematics: Curriculum and Materials
Instructional materials and methods of meaningful explanations of mathematics in the elementary school based upon structural properties of number and numeration system studies at this level. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent; MTH 344. Corequisite: ED 327 or 328 or 329.

321-0, 322-0, 323-0 Field/Clinical IV, V, VI
Sixty hours of field/clinical experiences in the public schools in which students implement teaching strategies that have been introduced in the Phase II methods components. Completion of Phase I and registration in Phase II required. Corequisite: for 321, ED 327; for 322, ED 328; for 323, ED 329; or permission of Phase II coordinator.

326-1 Meeting Individual Needs
The identification of exceptional individuals and methods for meeting their needs in a regular classroom are discussed. Prerequisite: ED 211 through 217.

327-1 Teaching Skills: Planning and Motivation
Explores the basic teaching skills of planning and motivation in relation to the instructional process. Skills using audiovisual equipment are also analyzed in terms of planning and motivation. 1 hour lecture, 1 hour lab. Prerequisite: ED 211 through 217.

328-1 Teaching Skills: Questioning and Clarifying
Explores the basic teaching skills of questioning and clarifying in relation to the instructional process. Skills in the production of audiovisual materials for use in the instructional process are also developed. 1 hour lecture, 1 hour lab. Prerequisite: ED 211 through 217, 327 (ED 327 may be taken concurrently).

329-1 Teaching Skills: Instructional Strategies and Management
Explores the variety of instructional strategies and management techniques that can be used in presenting and summarizing material. Selection of media alternatives that will best facilitate learning is also included. 1 hour lecture, 1 hour lab. Prerequisite: ED 211 through 217, 327, 328 (ED 328 may be taken concurrently).

332-3 Secondary School English: Curriculum and Materials
Curriculum, methods, and materials for language arts in the secondary school; current trends in teaching English. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Junior standing and twenty-two credit hours in the teaching field including ENG 341 required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

333-3 Secondary Speech and Drama: Curriculum and Materials
Curriculum and materials for those preparing to teach speech and drama in secondary schools; curriculum, teaching methods, class organization, producing plays, and cocurricular activities. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Junior standing and twenty-four credit hours in the teaching field with at least nine credit hours at the 300-level or above required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

334-3 Modern Foreign Languages: Curriculum and Materials
Modern language curriculum in public schools; purposes; methods; materials. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval, and junior standing or permission of instructor required. Prerequisite: ED 211 through 217 and completion of a 200-level language course. Corequisite: ED 327 or 328 or 329.

335-3 Business Mathematics for Business Teachers
Course designed for business education majors to review, demonstrate, and develop teaching strategies applicable to consumer math. Teaching methods integrated with the basic math fundamentals and other math applications. Enrollment limited to business education majors.

338-3 Secondary School Mathematics: Curriculum and Materials
Curriculum, methods, and materials in the mathematics of grades 7-12. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. A minimum of thirty credit hours in mathematics required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329. Offered once each year.
Courses / Education

370-1 to 9 Independent Reading and Minor Problems
Planned reading and/or project under the guidance of a faculty member of the College of Education and Human Services. Senior standing in education and written consent of dean prior to registration required. Maximum of three credit hours may be taken in any one quarter.

Advanced Courses
All courses listed below require junior or senior standing in education, in addition to the listed prerequisites.

400-1 to 9 Education Honors Research
Independent study in depth under the guidance of a faculty adviser. Admission to honors program in Division of Teacher Education required.

403-3 to 4 Child Development
Factors that influence growth and development. Prerequisite: ED 211 through 217 or equivalent.

404-3 Adolescent Development
Examination of adolescence; particular attention to physical development and its psychological and social concomitants and to the effect upon the adolescent of social forces, especially school. Prerequisite: ED 211 through 217 or equivalent.

405-1 to 4 Current Tendencies in Education
Consideration of current trends and theories in education; development of criteria and procedures for their evaluation and implementation. May be repeated to a maximum of twelve credit hours.

406-3 Survey of Vocational Education
An overview of the instructional programs in vocational education with emphasis on the types of programs, their administration, and their relationship to other phases of education. The vocational services covered include business and office education, distributive education, agriculture education, home economics education, industrial arts education, health occupations, technical education, trade and industrial education, and vocational guidance.

407-3 Cooperative Office Education
Qualifying course for Cooperative Office Education programs. An overview of Cooperative Office Education with emphasis on coordinating techniques applicable in high school, post-high school, and adult training areas. Prerequisite: ED 433.

408-3 Intensive Office Education
Qualifying course for Intensive Office Education. Comprehensive study in developing procedures and principles in program construction, selection, improvement, implementation, and development of program guidelines. Prerequisite: ED 433.

409-4 Early Childhood Curriculum and Materials: Sociocultural
Historical, philosophical, and sociological aspects of early childhood education. Emphasis is on the development of race awareness in young children and the development of self concept. Prerequisite: ED 411 or 412 or permission of instructor. (Previously listed as ED 312.)

411-4 Early Childhood Education
Growth and development of preschool child with emphasis on interpretation of anecdotal records and case studies. For individuals planning to teach in nursery schools and kindergartens. One half-day per week participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent.

412-4 Kindergarten: Curriculum and Materials
Various types of early childhood programs in the United States. Research in historical background of such programs. Review of basic human growth and learning principles significant for understanding young children, prenatal through age eight. Focus on planning effective preschool programs. One half-day per week participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent.

413-3 Elementary School Geometry: Curriculum Materials
Prepares elementary teachers to teach geometrical concepts included in today's K-6 mathematics programs. Emphasis on informal approach to teaching geometry using experimentation, intuition, and guided discovery. Prerequisite: ED 318, MTH 345; or equivalent; or permission of instructor.

414-4 Early Childhood Education Curriculum and Materials: Language
Review of developmental patterns of language, sequence of stages, general language patterns, and characteristics of speech of the young child. Study of linguistic differences as basis for preparation of curriculum and materials for instruction of young children. Basic emphasis on existing
commercial materials for preschool language development, evaluation of these materials, and design and presentation of supplementary and basic teacher-made materials. One half-day per week participation experience required during enrollment in course. Recommended preparation: COM 421. Prerequisite: ED 211 through 217 or equivalent.

415-3 Improvement of Elementary Reading Instruction
Curriculum, methods, materials, and evaluation in reading designed to improve the teacher’s instructional skills. One half-day per week participation experience required during enrollment in course. Prerequisite: junior standing; or ED 315, 316, 317, or permission of instructor.

416-3 to 4 Improving Science Instruction in the Elementary School
Selected scientific principles that have particular application in the elementary school. Inquiry through a laboratory approach emphasized. Prerequisite: BIO 111, 112, 113; ED 241, 242, 243, or equivalent; or permission of instructor.

417-3 to 4 Elementary School Social Studies: Curriculum and Materials
Objectives, principles, and trends in elementary social studies education. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent.

418-3 to 4 Empirical Mathematical Instruction in the Elementary School
For teachers or supervisors who desire study in improvement of instruction. Prerequisite: ED 211 through 217 or equivalent; ED 318 or equivalent.

419-4 to 14 Supervised Teaching, Elementary
Student teachers, assigned to a public school full time, work under direct supervision of an experienced classroom teacher. In the fall, student teaching begins in September with the opening of the public schools and continues for approximately fourteen weeks to the end of the fall quarter. During the winter and spring quarters, the period of student teaching corresponds with the respective academic quarter. A student may receive fourteen credit hours for student teaching in the fall and twelve credit hours for winter and spring quarter. No student teaching during the summer. Formal application must be made through the office of the director of laboratory experiences during the first two weeks of the quarter prior to student teaching. Concurrent enrollment in ED 440 and consent of director of laboratory experiences required. Student teaching and ED 422 constitute a full load for the quarter. No other course work may be taken. Prerequisite: completion of 112 credit hours (at least twelve of which must have been taken at Wright State), participation experiences, a 2.25 cumulative grade point average, and completion of ED 315, 316, 317, 318, or equivalent with grade of C or better. In addition, students in special education must also complete ED 302, 441, 442, 455, and 456 with a grade of C or better. Students seeking kindergarten certification must also complete either ED 411 or 412, or 414, with a grade of C or better.

420-2 to 4 Studies in English Education
Courses offered under this number focus on theoretical issues and practical problems of teaching English at all levels to meet the needs of teachers of English to speakers of other languages (TESOL). Course topics include theory, evaluation procedures for TESOL, and practicum in TESOL.

421-3 Books and the Educational Program
Knowledge of wide range of children’s literature, including the selection criteria and the rationale for classroom practices with children’s literature. Prerequisite: ED 315, 316, 317, or equivalent.

422-1 to 3 Student Teaching Seminar
Discussion of problems and concerns encountered during student teaching to bring professional theory and practice into working perspective. Corequisite: ED 419 or 429.

426-2 to 5 Outdoor Education
Provides teachers and leaders seeking skills in the use of the out-of-doors as a resource for program or curriculum enrichment: laboratory experiences and field work in a variety of biotic communities emphasizing ecological relationships.

429-4 to 15 Supervised Teaching, Secondary
Same as ED 419 except applied to secondary level. Requirements: appropriate curriculum and materials course with grade of C or better and ED 464 with grade of C or better; completion of 126 credit hours (at least twelve of which must have been taken at Wright State, normally including work in both academic major and professional education); participation experiences; 2.25 cumulative grade point average; 2.25 cumulative average in teaching field. Specific course prerequisites in academic majors vary. See description under major field.
430-3 Teaching About Religion in the Public Schools
(Taught jointly with Department of Religion; see REL 430.) Introduction to the historical background and court decisions pertaining to teaching about religion in the public schools; current ways in which religion is taught in the public school; new experimental approaches to teaching about religion.

431-3 Secondary School Science: Curriculum and Materials
Curriculum and materials for teaching science; emphasis on objectives, evaluation, planning, resources and facilities, and curricular trends in science education. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

432-3 Improving Reading in the Secondary School
Techniques of diagnosing and correcting reading problems of secondary students. Exploration of secondary reading programs with emphasis on skill development. Participation experience required during enrollment in course. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

433-4 Business and Office Education: Curriculum and Materials in Basic Business Subjects
Designed to acquaint the student with business and office education philosophy, objectives, and curricula on the secondary level of instruction. Curriculum, materials in basic business subjects, bookkeeping, and sales communication. Participation experience expected during enrollment in course. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

434-3 Business and Office Education Curriculum and Materials: Typewriting and Office Procedures
Curriculum, methods, and materials in typewriting and office procedures in the secondary school; current trends in teaching typewriting and office procedures in the vocational program. Admission to College of Education and Human Services or departmental approval required. Prerequisite or corequisite: ED 433, OA 213.

435-4 Business Education Curriculum and Materials: Typewriting, Office Procedures, Shorthand, and Transcription
Curriculum, methods, and materials in teaching typewriting, office procedures, and transcription. Participation required. Prerequisite or corequisite: ED 433; OA 203, 213. Corequisite: ED 327 or 328 or 329.

437-3 Methods of Teaching Distributive Education
Selection, organization, and presentation of subject matter in high school and adult extension programs. Methodology and teaching techniques are emphasized through theory and practice. One half-day per week participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

439-3 to 4 Secondary School Social Studies: Curriculum and Materials
Objectives, principles, and trends in secondary social studies education. Participation experience required during enrollment in course. Admission to College of Education and Human Services or departmental approval, completion of thirty credit hours in the field for history, and completion of seventy credit hours in the field for social studies comprehensive required. Prerequisite: ED 211 through 217 or equivalent. Corequisite: ED 327 or 328 or 329.

440-1 to 4 The Teacher in School and Society
A seminar dealing with the legal and social issues affecting education, and the development of a personal philosophy of education. Prerequisite or corequisite: ED 419 or 429.

441-3 Mental Retardation and Developmental Disabilities
Causes and effects of mental retardation and related developmental disabilities in home, school, and community settings. Junior standing or permission of instructor required. Prerequisite: ED 211 through 217; 403 or equivalent. (See additional prerequisites in concentration description.)

442-4 Curriculum Development and Materials for Exceptional Individuals
Practices and procedures used in developing curricula for exceptional children, including preparation, selection, and adaptation of instructional materials. Emphasis on a persisting life problems approach including social studies and science content. One half-day per week participation experience required during enrollment in course. Junior standing or permission of instructor required. Prerequisite: ED 211 through 217, 403, 441, 455, or equivalent (ED 441 and 455 may be taken concurrently).
445-3 Career Education and Occupational Training for Exceptional Individuals
Role of occupational training in the curriculum; relationships with the world of work; problems of organizing and administering; methods and techniques used in developing occupational interests and abilities at various levels. Participation experiences required during enrollment in course. Junior standing or permission of instructor required. Prerequisite: ED 441, 442, 455 or departmental approval.

447-4 Teaching in the Public School
Study, observation, and evaluation of practices. Open only to students who have completed the pertinent curriculum and materials course and are seeking a waiver of all or part of student teaching on the basis of full-time teaching experience.

448-3 Improvement of Social Studies Instruction
An in-depth analysis of new social studies resource materials and curriculum models with an emphasis toward improving instruction. Prerequisite: ED 417 or 439.

451-3 Introduction to the Multiply Impaired Individual
A review of etiological aspects, educational and training programs, concerns and issues related to multiply handicapped including trainable retarded, autistic, and severely and profoundly physically and mentally handicapped. Observation and participation are required. Prerequisite: ED 302, 403, 441, and permission of instructor.

452-3 Education of Children and Youth with Physical, Sensory, and Communication Disorders
An overview of the etiology and educational implications of physical disabilities, sensory deficits, and communication disorders. Emphasis is placed on psycho-educational, physical, and medical needs of these individuals. Participation is required. Prerequisite: ED 317 or 415, 318, 441, 442, 454, 455.

453-3 Education and Training of the Multiply Impaired Individual
Reviews organizations, methods, materials, and techniques for educating and training multiply handicapped children, youth, and adults. Related professional organizations and community services are reviewed. Participation with clients is required. Prerequisite: ED 451.

454-3 Administration and Interpretation of Educational Data
Students learn to administer and interpret formal and informal educational assessment instruments and to communicate assessment data to parents and colleagues. Prerequisite: ED 211 through 217, 441, 455 (ED 441 and 455 may be taken concurrently).

455-2 Education of Individuals with Learning Disabilities and Behavior Disorders
Overview of specific problems and major remedial approaches to children with learning disabilities and behavior disorders. Participation experiences required during enrollment in course. Prerequisite: for elementary majors, ED 211 through 217, 403, and 441 (ED 441 may be taken concurrently); for non-elementary majors, ED 317, 318, junior standing, or permission of instructor.

456-3 to 5 Clinical Practice in Remediation
Supervised clinical practice in the diagnostic teaching of exceptional individuals. Emphasis on assessment, reading, and math curriculum and materials. 2 hours lecture, 2 hours lab. Prerequisite: ED 317 or 415, 318, 441, 442, 454, 455.

457-4 Mental Health and the Retarded Client
Reviews mental health needs and problems of the mentally retarded client and special remediation techniques. Both mildly retarded and moderately/severely/profoundly retarded (MSRP) clients are addressed. Requires observation and participation with clients.

458-1 to 9 Practicum in Education
A supervised teaching experience for students who have completed student teaching (or its equivalent) and are seeking certification in another field. Topics vary from quarter to quarter. Permission of instructor and completion of a minimum of six credit hours of professional education at Wright State required.

459-3 Techniques for Counselling Parents of Exceptional Individuals
Overview of the exceptional child's effects on the family unit and concerns and feelings of family about child. Techniques in counseling parents of special children. Prerequisite: ED 441, 455, or permission of instructor.

462-3 Student Personality and Development Problems
Applies personality and developmental theories, perspectives in mental health, and family and school environmental influences toward the recognition and resolution of the problems of pupils. Senior or graduate standing in education or permission of instructor required.

464-3 to 4 Evaluation
Evaluation of learning, including selected forms of measurement and interpretation of data; sociometric techniques, anecdotal records, and testing. Prerequisite: ED 211 through 217 or permission of instructor.
470-1 to 6 Curriculum and Instruction Workshop
Intensive study of a selected area of the school curriculum to meet the particular needs of the participating preservice and inservice teachers, administrators, and curriculum supervisors. Specific topics to be added for individual workshops. May be repeated to a maximum of nine credit hours. Senior or graduate standing in education or permission of instructor required.

490-3 to 12 Internship in the Schools
Assuming major responsibility for a group of pupils in a classroom setting for an academic year while having the support and guidance of school and university personnel. Senior standing, satisfactory completion of student teaching, and completion of a minimum of 162 credit hours required.

Engineering/EGR

111-4, 112-4, 113-4, 114-4 Cooperative Education I, II, III, IV
Full-time work experience in an engineering area. Planned learning objectives, work experience reports, and conferences with employer and faculty adviser. Topics vary from quarter to quarter. Departmental approval required.

121-2.5 Engineering Drawing
Covers basic techniques of proper use of drafting instruments in general. Includes exercises in lettering, types of lines, freehand sketching, geometric constructions, multiview projections, sectional, auxiliary, and pictorial views, and dimensioning. 1 hour lecture, 3 hours lab. Meets at Sinclair Community College.

141-3 Development of Engineering and Technology
Historical perspective of the development of engineering, science, and technology, including the interrelationship of technology and society. Engineering as a modern profession. Open to all students.

142-4 Introduction to Engineering Analysis
Introduction to engineering analysis: dimensions and units, electric circuits; vector algebra; use of analog and digital computers. 3 hours lecture, 2 hours lab. Prerequisite: MTH 130, 131.

212-4 Statics
Forces, resultants, components, equilibrium of particles, equilibrium of rigid bodies, centroids and centers of gravity, analysis of structures, friction, moments of inertia. Prerequisite: MTH 231.

213-4 Dynamics
Vector treatment of the kinematics and kinetics of particles and rigid bodies, based on Newton's laws and including work-energy and impulse-momentum techniques. Prerequisite: EGR 212, PHY 240.

231-1 Contemporary Areas of Engineering Physics
Specification of areas to which engineering physics is relevant. Discussion of specific problems in fields such as space science, fluid and plasma dynamics, thermal science, instrumentation, design utilization of material properties, and nuclear engineering. For present or tentative engineering physics majors.

300-4 Technology and Society
(Taught jointly with Departments of Sociology and Anthropology and Religion; see REL 300, SOC 311.) Important developments in engineering and technology and their interrelations with society and human values. Analysis of significant historical events in technology and their social consequences. Assessment of possible impact upon society of contemporary technological developments. Open to all juniors and seniors.

306-4 Engineering Psychology
(Listed jointly with Department of Psychology; see PSY 306.) Introduction to the study of human factors in the design and operation of machine systems. Prerequisite: PSY 111, 112.

313-4 Strength of Materials
Axial and shear stresses and strains; biaxial loading; torsion of circular shafts; shear and bending moment diagrams; deflection of beams; column theory. 3 hours lecture, 2 hours lab. Prerequisite: EGR 212, PHY 240.

315-4 Thermodynamics
Classical thermodynamics with primary emphasis on application of the first and second laws to thermal systems. Introduction to physical and chemical equilibria. Prerequisite: PHY 241.

317-4 Fluid Dynamics
Study of fluid properties; fluid statics, one-dimensional compressible and incompressible flows; flow of real fluids, flow measurement. 3 hours lecture, 2 hours lab. Prerequisite: EGR 315.

318-4 Heat Transfer
Principles that govern heat transfer in solids, in fluids, in vacuum, and at interfaces of solids and fluids. Laboratory experiments to illustrate these phenomena. 3 hours lecture, 2 hours lab. Prerequisite: EGR 317.
320-4.5 Direct and Alternating Circuit Analysis
Major topics for this basic circuit theory course include component laws, network topology, node and mesh analysis, computer solution techniques, and sinusoidal steady-state analysis. Emphasis is placed on linearity and on the interrelationship between the frequency and time domains. 3 hours lecture, 3 hours lab. Prerequisite: CS 142 or 210, MTH 233. Corequisite: PHY 242.

321-4 Linear Systems I
Considers systems in a broad context including linear, nonlinear; variant, invariant; analog and discrete. The various approaches to system and signal modeling are also discussed with special attention to the Fourier transform technique. 4 hours lecture, 1 hour recitation. Prerequisite: EGR 320.

322-3 Linear Systems II
Extends techniques of EGR 321. Introduces convolution and emphasizes the relationship among convolution, the system function, and the differential equation description. Develops the Laplace and z-transform techniques and provides an introduction to digital filter theory. Prerequisite: EGR 321.

323-4.5 Discrete Systems
Extends the techniques of EGR 321 and 322 to discrete time systems. System description using difference equations, transfer functions, singularity function response, and pole zero locations. System response using classical difference equation solutions, discrete convolution and z-transform methods; stability, Frequency response, discrete and fast Fourier transforms, digital filter synthesis. 3 hours lecture, 3 hours lab. Prerequisite: EGR 322.
385-2 Metallography Laboratory
Preparation of metallographic specimens: use of the metallurgical microscope including the preparation of photomicrographs. Prerequisite: EGR 370.

386-2 Materials Testing Laboratory
Fundamentals of mechanical testing instrumentation and techniques including the tensile test, hardness tests, effect of heat-treatment on strength, and correlation of microstructure, composition, and properties. Prerequisite: EGR 375, 385.

403-4.5 Measurement Systems
General concepts of measurement instrumentation of physical quantities and specific measuring devices for motion, force, torque, pressure, sound, flow, and temperature measurement. 3 hours lecture, 3 hours lab. Prerequisite: EGR 375, 385.

405-5 Applied Electronics
Application of modern electronics for use in instrumentation and data, principally utilizing integrated circuits. Topics include useful circuit laws, transistor switches, flip-flops, ideal linear voltage amplifiers, operational amplifiers, feedback amplifiers, and measuring instruments. 3 hours lecture or independent study, 4 hours lab. Credit will not be granted to students with credit for EGR 341. Prerequisite: PHY 242.

407-3 Optimization Techniques
Concepts of minima and maxima: linear programming; simplex method, sensitivity, and duality; transportation and assignment problems; dynamic programming. Prerequisite: MTH 233, 253, or permission of instructor.

411-4 Advanced Dynamics

414-4 Introduction to Mechanical Design
Application of general principles and empirical relationships of mechanics of solids to the creative design of machines. Prerequisite: EGR 313.

415-3 Advanced Thermodynamics
Power and refrigeration cycles, thermodynamic relations, phase and chemical equilibrium. Prerequisite: EGR 315.

416-4 Advanced Mechanics of Solids

417-3 Mechanics of Viscous Fluids
Fundamental equations of viscous flow for laminar and turbulent flows. Boundary layer analysis. Analytical and numerical solutions of the equation of motion. Prerequisite: EGR 318.

418-3 Heat Conduction in Solids
Analytical and numerical techniques for heat conduction problems in one, two, and three dimensions for steady and transient cases. Phase-change problems. Prerequisite: EGR 318.

419-3 Biomedical Engineering Systems I
Application of engineering and mathematical techniques in the derivation of the basic laws underlying biophysical systems. Topics include transport theory and electrical properties of cell membranes; control theory applied to regulation of body functions. Prerequisite: EGR 213, MTH 233. Corequisite: PHS 218.

420-3 Biomedical Engineering Systems II
Application of the mechanics of fluids and solids together with thermodynamic principles in formulating the basic equations governing cardiovascular and pulmonary functions. Topics include rheology, hemodynamics, lung aerodynamics, cardiac mechanics, and system interactions. Prerequisite: EGR 419. Corequisite: PHS 219.

421-5 Communication Theory
Analysis of linear systems by the Fourier transform and the time convolution integral methods. Introduction to information theory. Comparative evaluation of various analog and pulse modulation techniques. Selected topics from radar theory and electro-optics as well as an introduction to random process theory. Prerequisite: EGR 322.

422-3 Engineering Biophysics
Application of mathematical and engineering techniques toward describing biophysical systems. Topics include cellular transport, electrical properties of membranes, and regulation of blood pressure and body temperature. Prerequisite: EGR 321, PHS 219.

423-4 Energy Conversion
Important new developments in energy conversion. Thermoelectric, photoelectric, thermionic, and electromechanical systems are studied. Prerequisite: EGR 315.
425-4.5 Control Systems I
Introduction to control systems using state variables and classical analysis. Closed loop system representation, block diagrams, time response, frequency response. 3 hours lecture, 3 hours lab. Prerequisite: EGR 322.

426-4.5 Control Systems II
System stability and closed loop response are analyzed using Routh-Hurwitz, Nyquist, and root locus techniques. System specifications and compensation realized using state variables and classical analysis. 3 hours lecture, 3 hours lab. Prerequisite: EGR 425.

427-4 Digital Control Systems
Sampled spectra and aliasing; design of digital control systems using transform techniques and state-space methods; discrete equivalents to continuous transfer functions; quantization effects. 3 hours lecture, 2 hours lab. Prerequisite: EGR 426.

428-3 Biomechanics and Biofluids
Application of solid and fluid mechanics and thermodynamics toward describing physiological systems. Topics include muscle contraction, cardiac mechanics, hemodynamics, and whole body heat transfer. Prerequisite: EGR 322, PHS 219.

430-4 Distributed Systems
Distributed constants and traveling waves in various types of physical systems. AC steady-state in distributed systems; phase and group velocities; reflections, standing wave ratios, and impedance matching techniques. Prerequisite: EGR 322, MTH 232.

432-4 Introduction to Flight Control Systems

433-4 Reliability Analysis

435-3 Network Synthesis and Design
Active and passive network analysis; zero-network functions and their realizability, introductory filter concepts and the approximation problem; passive network synthesis; basics of active filter synthesis. Prerequisite: EGR 322.

441-4.5 Electronic Circuits
Theory and application of basic engineering electronics developed for discrete and integrated circuits. Topics include bipolar and field effect transistor amplifier analysis and design, frequency response, multi-stage and feedback amplifiers. 3 hours lecture, 3 hours lab. Prerequisite: EGR 341.

444-4 Linear Integrated Circuits
Theory and applications of linear integrated circuits. Major topics are ideal and real operational amplifiers, frequency response and compensation, active filters, comparators, and waveform generators. 3 hours lecture, 2 hours lab. Prerequisite: EGR 441.

449-4.5 Pulse and Digital Circuits
Design and analysis of pulse and switching circuits including linear wave shaping, diode wave shaping, logic types. DTL, DCTL, RTL, TTL, and ECL: bistable, astable, and monostable multivibrators; voltage comparators; Schmitt triggers; blocking oscillators; and magnetic core switching. 3 hours lecture, 3 hours lab. Prerequisite: EGR 441.

450-4 Switching Theory and Circuits
(Listed jointly with Computer Engineering; see CEG 260.) Switching algebra and switching functions, logical design of combinational and sequential switching circuits using integrated circuits. 3 hours lecture, 2 hours lab. Junior standing or permission of instructor required.

451-4 Digital Systems Design
(Listed jointly with Computer Engineering; see CEG 360.) Design of digital systems. Topics include digital arithmetic, register level design, memory devices and their logic, controller and processor design. 3 hours lecture, 2 hours lab. Prerequisite: EGR 450. (Previously listed as EGR 442.)

456-4 Introduction to Robotics
(Listed jointly with Computer Engineering; see CEG 456.) Introduction to the mathematics, programming, and control of robots. Topics include coordinate systems and transformations, kinematic equations, trajectory planning, dynamics, control, programming, and computer vision. Senior standing in computer science, computer engineering, or engineering, and permission of instructor required. Prerequisite: MTH 233.
Courses/Engineering

460-3 Design and Analysis of Engineering Experiments
Introduction to planning and analysis of engineering experiments. Covers basic topics required for experimental work and their applications to engineering problems. Brief coverage of basic statistics, probability distributions, tests of hypotheses, linear regression and analysis of variance, and the application of these tools using randomized block, factorial, and fractional factorial experimental designs in investigation of engineering problems. Senior standing or permission of instructor required.

461-4 Bioinstrumentation
Principles of design and analysis of electronic instrumentation for biological applications. Topics include transducers, electrodes, signal processors, image processing, and electrical safety. 3 hours lecture, 2 hours lab. Prerequisite: EGR 441.

463-4 Biomedical Computers
Digital computer (hardware) applications in the health care field. Topics include hospital/operating room computer systems; microprocessors in clinical and medical research laboratories; computers in rehabilitation engineering. 3 hours lecture, 2 hours lab. Prerequisite: EGR 441.

470-4 Communication Systems Design
Introduction to communication system design. Topics include source characterization and encoding, choice of modems and the tradeoffs involved, choice of received configuration. Techniques developed applied in the design of a deep space communication system. Prerequisite: EGR 322, 421, or permission of instructor.

472-3 Seminar in Human Factors Engineering
Study of current research reports in human factors engineering. Reports studied are selected from recent journals to be representative of work requiring engineering analysis and design as well as psychological experimentation and statistical analysis. Senior standing in human factors engineering required.

475-3 Introduction to Radar Systems
Introductory study of the radar equation, antenna patterns, target cross sections and system losses, radar measurements, pulse doppler and coherent techniques, detection probability and signal-to-noise ratio, side lobe clutter, synthetic arrays and pulse compression techniques. Senior standing required. Prerequisite: EGR 322.

477-4 Mechanical Behavior of Materials
Crystal plasticity and single crystal behavior. Introduction to dislocation theory. Strengthening mechanisms and polycrystalline behavior. Introduction to viscoelasticity. Fracture, fatigue, and creep of materials. Prerequisite: EGR 313, 370.

479-4 Materials Corrosion
(Listed jointly with Department of Chemistry; see CHM 479.) Survey of principles of corrosion processes with application to metallic and nonmetallic materials. Principles of electrochemistry are included. Prerequisite: EGR 315, 370; or corequisite CHM 453; or permission of instructor.

480-3 Engineering Economy
Introduction to analytical methods and techniques for optimizing the economic outcome of technical and managerial decisions. Includes time value of money, annual cost, present worth, future value, capitalized cost break-even analysis, and valuation and depreciation. Prerequisite: MTH 132.

481-3 Nondestructive Testing
Survey of the principal techniques used to detect and evaluate flaws in material components such as castings, weldments, and composites. Includes liquid penetrant, ultrasonic, radiographic, eddy current, and magnetic test methods. Prerequisite: EGR 370.

482-4 X-Ray Methods in Materials Science
Introduction to the theory and practice of diffraction methods in the study of alloys, refractory materials, and polymers. 2 hours lecture, 4 hours lab. Prerequisite: EGR 376 or permission of instructor.

483-3 Ceramics and Refractories
An introduction to ceramic materials that includes descriptions of ceramic raw materials, glasses, solid state chemistry, microstructures, elasticity and strength, and thermal stresses. Prerequisite: EGR 375.

485-4 Solidification Processing
Fundamentals of melt solidification, application to metals casting technology, and an introduction to powder metallurgy. 3 hours lecture, 2 hours lab. Prerequisite: EGR 375.

486-4 Deformation Processing
Fundamentals of principal deformation processing systems including forging, extrusion, rolling, and sheet forming: material response and formability; mechanics and analysis of selected processes. 3 hours lecture, 2 hours lab. Prerequisite: EGR 313, 370.
487-4 Machining
Fundamentals of machining with an emphasis on engineering models of machinability, chip formation, cutting forces and power, lubrication. Introduction to numerical control machining. 3 hours lecture, 2 hours lab. Prerequisite: EGR 370.

488-4 Powder Processing

489-4 Engineering Plastics: Materials, Processes, and Design
(Listed jointly with Department of Chemistry; see CHM 469.) Properties and manufacturing processes of engineering plastics and effect of these factors on plastics design. Illustrative laboratory projects included. 2 hours lecture, 4 hours lab. Prerequisite: CHM 465.

490-4, 491-4 Engineering Design I, II
Independent investigation of contemporary engineering problems under the guidance of an instructor. Topics selected to meet the needs and interests of students. Research of professional literature and submission of an engineering report required. 2 hours lecture, 2 hours lab, 1 hour recitation. Senior standing required.

492-4 Materials Engineering Design
Independent investigation of a contemporary problem in materials science and engineering under faculty guidance. Project design and reporting are emphasized along with analysis, synthesis, and testing. Senior standing in materials science and engineering required.

499-1 to 5 Special Problems in Engineering
Special problems in advanced engineering topics. Topics vary from quarter to quarter. Departmental approval required.

English/ENG

081-4 English for Non-native Speakers
Basic course in written and spoken communication for non-native speakers of English. May be repeated. Open only to non-native speakers. Cannot be applied toward graduation requirements.

101-2 Overcoming Writer's Block
Concentrates on conquering writer's anxiety through the use of graded prewriting and writing exercises. Permission of instructor or enrollment in Expanding Horizons program required.
240-4 *Intermediate Composition*  
Improvement of writing skills with special attention to individual writing weaknesses. Includes a review of basic writing principles. Prerequisite: ENG 111, 112; or equivalent.

254-4 *Introduction to Journalism*  
(Listed jointly with Department of Communication; see COM 254.) Overview of the role of the press in American society with special emphasis on print media. Topics include the press, government, and the First Amendment.

257-4 *Basic News Writing*  
(Listed jointly with Department of Communication; see COM 256.) Introduction to writing for print media. Structure and organization of news stories. Requires reporting in the field.

330-3 *Business Writing*  
Techniques in business writing with special attention to improving mechanical skills, reviewing forms of business writing, and analyzing business and technical prose. Prerequisite: ENG 111, 112; or equivalent.

333-4 *Fundamentals of Technical Writing*  
Basics of technical writing with emphasis on descriptive techniques, audience analysis, and report writing. Prerequisite: ENG 111, 112; or equivalent.

342-4 *Advanced Composition for Elementary Teachers*  
Study and practice of writing with special attention to informative and creative writing taught in the elementary schools and to problems of teaching writing to elementary school students. Prerequisite: ENG 111, 112; or equivalent.

344-4 *Research Writing*  
Instruction in organization, documentation, and writing of research papers. Research projects based not only upon primary and secondary sources but also upon experiment and investigation. Prerequisite: ENG 111, 112; or equivalent.

454-4 *Feature Story Writing*  
(Listed jointly with Department of Communication; see COM 454.) Finding, writing, polishing, and marketing feature material. Prerequisite: ENG 257 or permission of instructor.

458-4 *Editing for the Media*  
(Listed jointly with Department of Communication; see COM 458.) Editing of copy for mass media with special emphasis on newspaper format, headline writing, rewriting, and general copy desk. Prerequisite: ENG 257 or COM 256 or permission of instructor.

### Major Courses

Unless otherwise specified, successful completion of freshman English is the minimum prerequisite for all major courses. Bachelor of Arts degree candidates majoring in English must meet the minimum major requirements from courses in this group. For majors, ENG 255 and 256 are prerequisite to enrollment in other literature courses in this group.

255-4 *English and American Literary History*  
A course for English majors designed to give a sense of the continuity of literary history.

256-4 *Writing About Literature*  
A basic course in techniques of writing analytical, critical, and scholarly papers about literary topics. Prerequisite: ENG 111, 112; or equivalent.

301-4 *Introduction to Creative Writing*  
Beginning course for students interested in creative writing, with special attention to foundations of the short story and poetry. Prerequisite: ENG 111, 112; or permission of instructor.

302-4 *Poetry Writing*  
Fundamentals of verse writing; practice in traditional and contemporary concepts of poetic form. Prerequisite: ENG 111, 112; or permission of instructor.

303-4 *Short Story Writing*  
Theory and practice of techniques of fiction, emphasizing reading of literary models and writing of original stories. Prerequisite: ENG 111, 112; or permission of instructor.

304-4 *Dramatic Writing*  
Theory and practice of techniques of dramatic writing, emphasizing writing of original plays. Prerequisite: ENG 111, 112; or permission of instructor.

309-4 *Creative Writing Workshop*  
For qualified students who wish to develop further their abilities in creative writing. Students work closely with the instructor on advanced projects in poetry, short story, drama, or the novel. May be repeated for credit. Prerequisite: ENG 302 or 303 or 304; or permission of instructor.

341-4 *Advanced Composition for Secondary Teachers*  
Combines study and teaching of composition with practice in writing. Emphasis on expository writing with special attention to evaluation of writing and problems of secondary school teachers.

343-4 *Advanced Composition*  
A course in the refinement of style. Emphasis on sophisticated techniques of expository writing.
351-4 Major English Writers: Chaucer to Shakespeare
Representative works of such major English writers of the medieval period and the sixteenth century as Chaucer, the Pearl-poet, Malory, Sidney, Spenser, Marlowe, and Shakespeare.

352-4 Major English Writers: Donne to Johnson
Representative works of such major British writers of the seventeenth and eighteenth centuries as Donne, Jonson, Milton, Dryden, Congreve, Swift, Addison, Steele, Pope, Fielding, Gray, and Johnson.

353-4 Major English Writers: Blake to Arnold
Representative works of such major Romantic and Victorian writers as Blake, Austen, Wordsworth, Coleridge, Keats, Shelley, Byron, Carlyle, Dickens, Tennyson, Browning, and Arnold.

354-4 Major English Writers: Hardy to the Present
Representative works of such major English writers of the modern period as Hopkins, Hardy, Housman, Shaw, Conrad, Yeats, Joyce, Lawrence, Woolf, and Eliot.

355-4 Major American Writers: Cooper to Whitman
Representative works of such major American writers before the Civil War as Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, and Whitman.

356-4 Major American Writers: Dickinson to Dreiser
Representative works of such major American writers from the Civil War to World War I as Dickinson, Twain, James, Howells, Wharton, Crane, and Dreiser.

357-4 Major American Writers: Fitzgerald to the Present
Representative works of such major American writers since the twenties as Fitzgerald, O'Neill, Frost, Hemingway, Faulkner, and Stevens. Also includes selected contemporary writers.

Note: The following series of "Studies" is intended to provide a wide range of courses approaching literature from a variety of significant viewpoints. Because a large number of courses can be offered under each "Studies" number, students should consult the department for a list and brief description of the particular courses that will be offered during a given academic year. Completion of at least three of the following courses is prerequisite to enrollment in the "Studies" courses: ENG 351, 352, 353, 354, 355, 356, 357.

410-4 Studies in English Literary History
Courses offered under this number provide intensive study of English literature from the point of view of literary history and are intended to develop an understanding of the historical approach to literature and an ability to deal critically with historical generalizations about literary periods and movements.

420-4 Studies in American Literary History
Courses offered under this number provide intensive study of American literature from the point of view of literary history and are intended to develop an understanding of the historical approach to literature and an ability to deal critically with historical generalizations about literary periods and movements.

430-4 Studies in Major English Writers
Courses offered under this number provide intensive study of the work of single, major English authors and are intended to develop an understanding of individual works of literature in the context of an author's life and total literary production.

440-4 Studies in Major American Writers
Courses offered under this number provide intensive study of the work of single, major American authors and are intended to develop an understanding of individual works of literature in the context of an author's life and total literary production.

450-4 Studies in Literary Types and Modes
Courses offered under this number provide intensive study of important literary forms such as poetry, the novel, comedy, tragedy, satire, and the epic, and are intended to develop an understanding of the formal aspects of literature as approached theoretically, analytically, and historically.

460-4 Studies in Literary Themes
Courses offered under this number provide intensive study of literary works in terms of significant and recurring literary themes as they can be traced in various eras, cultures, and literary traditions.

470-4 Studies in Literary Criticism
Courses offered under this number provide intensive study of theoretical, practical, and historical aspects of literary criticism to develop an understanding of important critical questions and approaches.

477-1 to 6 Workshop
Intensive study of selected special topics or problems to meet the particular needs of participating students. Specific titles announced for each workshop. May be repeated for credit subject to departmental, college, and university limits. Junior or senior standing or permission of instructor required.
113-3 Value System Alternatives for Society
Examination of environmental issues that reflect expressed or implied value judgments in social, economic, and political institutions.

122-3 Managing Finite Resources
A balanced study of principles, practice, and policy in development and use of material resources, both domestic and foreign, including economics of material substitution and resource recovery.

123-3 Food and the Environment
Environmental issues related to the production of food to sustain a growing world population, including biological, social, economic, political, and ethical concerns.

124-3 Energy Production, Consumption, and Policy
Examination of large-scale energy production and use, including economic, social, political, and environmental implications, development and conservation potentials, and issues for a comprehensive energy policy.

211-3 Earth as an Energy System
Scientific and technical overview of ecosystems, energy, matter, pollution, and functioning of the biosphere.

212-3 Environment and Man as a Social Being
Relationship between physical environment and man's behavior. Perception of space and effects of spatial arrangements on interaction patterns. Analysis of man's capabilities and limitations in design of man-environmental systems.

213-3 Humanistic Perspectives of Environment
Impact of art, literature, philosophy, and religion on man's expressions toward the environment.

214-3 Energy Production: Alternative Solutions
(Listed jointly with Department of Physics; see PHY 214.) Basic energy concepts and physical processes by which natural resources are converted to useful energy. Physical principles will be introduced as needed. Recommended preparation: ENV 211.

215-3 The Autonomous Home
Addresses current energy/resource consumption by the family unit. Concepts of integral lifestyle are presented including food production, water supply, and waste and energy management with emphasis on conservation and soft technology alternatives.

222-3 Basic Issues in Air Pollution
A holistic approach to the complex technical, economic, social, and legal issues surrounding air pollution and its control. Particularly appropriate for non-science majors. Junior standing recommended.
411-2 to 6 Internship
Individually arranged placement with cooperating agencies in metropolitan area. Junior standing and environmental studies dual major required.

412-6 Research Diving
An intense program to enable the scientist/diver to apply basic research techniques and diving skills to the study of the aquatic environment. Lecture, pool sessions, and required field work. Prerequisite: HPR 101 or equivalent.

413-2 to 6 Applied Environmental Studies
The development and application of tools and techniques toward an environmentally appropriate response to specific issues, needs, and lifestyles. Permission of instructor and a minimum of three courses in environmental studies required. Priority is given to environmental studies dual majors.

499-1 to 5 Special Problems
Research or individual study designed for specific needs and abilities of student. Junior standing and environmental studies dual major required.

Finance/Courses

205-3 Personal Financial Management
Provides knowledge that helps nonbusiness students to effectively manage their personal financial affairs. Topics include personal financial statements, budgeting, tax planning, investing and savings, consumer borrowing, insurance, real estate, and retirement planning. For nonbusiness majors only. Credit will not be granted to students with credit for FIN 305.

231-3 Real Estate: Principles and Practices I
Principles and practices relating to sales, financing, and legal factors affecting real estate. Fundamentals of marketing, closings, interest rates, and ownership considerations are analyzed and discussed.

232-3 Real Estate Law
Basic real property and real estate law. An understanding of legal concepts and terminology for persons who wish to qualify for Ohio Real Estate licenses. Prerequisite: FIN 231 or permission of instructor.

Advanced Courses
All courses listed below require junior standing, in addition to the listed prerequisites.

301-3 Business Finance I
Introduction to basic concepts, principles, and analytical techniques of financial management. Emphasis on planning and managing assets. Topics include formulating financial objectives, organizational form, and tax environment; current asset management; short-term financial analysis forecasting and planning; and capital budgeting. Prerequisite: ACC 201, 202, 203, EC 201, 202, 203. Offered every quarter.

302-3 Business Finance II
Continuation of FIN 301. Emphasis on financial structure decisions. Topics include cost of capital, financial leverage, management of short-, intermediate-, and long-term funds, dividend policy, valuation, and mergers. Prerequisite: FIN 301.

303-3 Case Problems in Financial Management
Application of basic financial concepts and analytical techniques to financial decision making. Extensive use of cases. Prerequisite: FIN 301, 302. Offered spring quarter only.

305-3 Personal Financial Planning
Financial problems encountered in managing individual affairs: family budgeting, installment buying, insurance, home ownership, and investing in securities.

331-3 Real Estate Principles and Practices
Basic orientation to the broad field of real estate. Principles, practices, and issues of real estate. The real estate market, types of real property interest, contracts, deeds, financing, home ownership, leases, investment, management, purchasing, selling, role of real estate agent search, examination, registration of title, title closing, the valuation process, city planning, zoning, public housing, urban renewal, and state regulation. Major issues and trends involving economic, political, and social implications in the field of real estate. Successful completion of this course meets part of the licensing requirement for real estate salesmen in Ohio. Recommended for all students.

332-3 Real Estate Law
Includes all areas of law commonly concerned with the typical real estate practitioner and investor-consumer. Topics include the law of agency as applied to real estate brokers and salesmen, law of fixtures, estates (including leases), conveyancing of real estate, real estate managers, zoning, cooperatives, condominiums, and license laws of Ohio. Successful completion of this course meets part of the licensing requirement for real estate salesmen in Ohio. Prerequisite: FIN 331.

335-3 Real Estate Brokerage
Real estate practices and management of property from the brokerage office manager's perspective. Managerial, financial, marketing, and legal aspects of real estate brokerage covered in depth. Prerequisite: FIN 331, 332.
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351-3 Risk and Insurance
The concept of risk, its implications in decision making, and its effects on social and economic activities. Emphasizes use of insurance as a method of solving the problems of risk encountered by all segments of society. Consumer-oriented and open to all students.

352-3 Life and Health Insurance
Problem of economic insecurity resulting from premature death, disability, and old age. General theory of life and health insurance, its economic and social implications, and underlying principles and reasons for various contract provisions, underwriting practices, and legal doctrines analyzed. Individual and group approaches.

353-3 Property and Liability Risk Management
Analytical study of important property and casualty coverages: insurance management problems facing business firms and individuals; various methods of treating property risks such as fire, windstorm, flood, riot, theft, marine and inland marine, business interruption, corporate suretyship, personal and corporate liability, automobile, workmen's compensation, multiple line policies, and other types of coverage. Major issues and trends analyzed.

401-3 Introduction to Investments
Introduction to the concepts and techniques relevant to the formulation of investment policies, objectives, and strategies for individual investors. Prerequisite: FIN 302, EC 301.

402-3 Investments Analysis and Management
The theory and practice of security analysis and portfolio management. Opportunities for individual investigation of specific problem areas are provided. Prerequisite: FIN 302, EC 301.

411-3 Financial Institutions
Provides an overview of the operation of financial markets and institutions. Topics include loanable funds theory, the level and structure of interest rates, and an examination of the money and capital markets. Prerequisite: FIN 301, 302; EC 301.

412-3 Commercial Banking
Problems of commercial banking discussed from point of view of bank management: determination of proper size of asset reserves; credit analysis required for various kinds of bank loans; investment policies for commercial banks; problems of equity reserves and capital account. Prerequisite: FIN 302, EC 301.

420-3 Seminar in Financial Management
In-depth treatment of advanced problems in managerial finance. Topics include capital budgeting, capital structure theory, cost of capital, dividend policy, and long-term financial management. Prerequisite: FIN 303.

433-3 Real Estate Finance
Major instruments used in financing real estate. Mortgage types, terms, and provisions. Default and foreclosure. Land contracts, leases, sales and leaseback arrangements. The mortgage market, determinants of supply and demand, and the effect of interest rate changes. Financial institutions, government operations. Alternative methods for financing income properties. Successful completion of this course meets part of the licensing requirement for real estate broker in Ohio. Prerequisite: FIN 331.

434-3 Real Estate Valuation and Appraisal
The purpose of appraisal and the concept of value. Factors influencing value. Determination of economic value through capitalization of future cash flows. Methodology for determining the capitalization rate, and use of compound interest tables. Market conditions. Replacement cost, depreciation, and land value. Successful completion of this course meets part of the licensing requirement for real estate broker in Ohio. Prerequisite: FIN 331.

436-3 Seminar in Selected Real Estate Topics
Various topics to be covered depending upon demand and instructor's objectives. Prerequisite: FIN 433, 434; or equivalent; or permission of instructor.

462-3 Retirement and Estate Planning
Designed to provide theoretical and practical approach to retirement and estate planning. Topics covered include pension programs, social security retirement benefits, HR-10 (Keogh) plans, IRAs, tax deferred annuities, federal estate taxes, state death taxes, wills, and the laws of intestacy. Prerequisite: FIN 302, ACC 331; or permission of instructor.

463-3 Seminar in Financial Services
A capstone course for the financial services area of concentration which emphasizes the development and application of a coordinated and systematic approach to financial planning. Extensive use of cases. Completion of financial services requirements or permission of instructor required.

477-1 to 3 Finance Studies
Independent reading and research in selected areas of finance. Senior standing in finance and permission of department chair required.
478-3 Honors: Independent Study in Finance
Research in finance for fulfillment of the Honors Program project requirement. Permission of department chair required.

481-6 Internship in Finance
One-quarter faculty-supervised internship in finance. The student will work in a firm or public agency, participate in seminars, and submit reports for the completion of the course. Approval of Administrative Sciences and Internship Committee required.

490-3 International Financial Management
Identification of those aspects of financial management altered or complicated by business transactions that transcend national borders: extension of the theory of domestic financial management in order that the added international variables can be explicitly included in the manager's decision parameters; development of analytical skills and perspective necessary to fulfilling the responsibilities of financial management in a multinational setting. Prerequisite: FIN 301, 302.

French/FR
101-4, 102-4, 103-4 First Year French
Study of the vocabulary and structure of the French language; practice in conversation, reading, and writing. Must be taken in sequence.

111-4 Essentials of French
Introduction to French with an emphasis on speaking the language.

201-4, 202-4 Second Year French
Grammar review, reading and discussion of selected texts, with practice in speaking and writing the language. Must be taken in sequence. Prerequisite: FR 103 or equivalent.

Advanced Courses
FR 202 or equivalent is the minimum prerequisite for all 300-level French courses.

301-4, 302-4 Survey of French Literature
301: Middle Ages, sixteenth, and seventeenth centuries. 302: eighteenth, nineteenth, and twentieth centuries.

321-4, 322-4 French Composition
321: writing techniques and grammar review. 322: explication de texte: oral and written stylistic analyses.

341-4, 342-4 Advanced French Conversation
Practice in oral use of French, emphasizing the culture of the French-speaking world.

351-4 French Civilization
Study of the main currents of French civilization with special emphasis on the development of literary and cultural aspects. Conducted in French.

361-2 French Phonetics
Pronunciation, diction, and intonation. Corrective exercises and laboratory work.

381-1, 382-1, 383-1 Applied Elementary French Instruction
French majors assist elementary course instructors in conducting classes. Enrollment limited to French majors. Permission of instructor required.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of French. Prerequisite: FR 302, 322; or permission of instructor.

403-4 Advanced Studies: Language/Civilization
Variable content. Topic chosen by instructor. Conducted in French. Prerequisite: FR 322, 342; or permission of instructor.

421-4 Literature of the Middle Ages
Les Chansons de Geste: Roland, Guillaume; le roman de Tristan, Chrétien de Troyes; le roman de Renard; theatre; le roman de la Rose. Prerequisite: FR 302, 322; or permission of instructor.

422-4 Villon to Chenier
Three centuries of French poetry: Villon, Scève, Marot, Du Bellay, Ronsard, d'Aubigné, Malherbe, La Fontaine, Boileau, Voltaire, Chénier. Prerequisite: FR 302, 322; or permission of instructor.

423-4 Seventeenth and Eighteenth Century Novel
Mme de La Fayette, Scarron, Fénelon, Montesquieu, Lesage, Prévost, Diderot, Laclos. Prerequisite: FR 302, 322; or permission of instructor.

441-4 Libertines and Moralists: From Rabelais to Voltaire
Currents of skepticism and humanism in the intellectual history of France. Major authors: Rabelais, Montaigne, Cyrano de Bergerac, Saint-Evremond, La Bruyère, La Rochefoucauld, Bayle, Fontenelle, Diderot, Voltaire. Prerequisite: FR 302, 322; or permission of instructor.

442-4 Seventeenth and Eighteenth Century Theatre
Works of Corneille, Molière, Racine, Marivaux, Diderot, Voltaire, Beaumarchais. Prerequisite: FR 302, 322; or permission of instructor.

443-4 The Enlightenment
History of political and social ideas in eighteenth-century France. Based principally on works on Montesquieu, Diderot, Voltaire, and Rousseau. Prerequisite: FR 302, 322; or permission of instructor.
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450-4 Independent Undergraduate Research
Topics vary from quarter to quarter.

451-4 Romanticism from Rousseau to Hugo
Includes Bernardin de Saint-Pierre, Chateaubriand, Mme de Staël, Nodier, Lamartine, Vigny, Musset, Nerval. Prerequisite: FR 302, 322; or permission of instructor.

452-4 Nineteenth Century Novel
Chateaubriand, Constant, Stendhal, Balzac, Flaubert, Zola, France. Prerequisite: FR 302, 322; or permission of instructor.

453-4 Poetry from Baudelaire to Breton
Symbolists, Decadents, and Surrealists. Prerequisite: FR 302, 322; or permission of instructor.

454-4 Nineteenth Century Short Story
Intensive study of such authors as Balzac, Stendhal, Mérimée, Flaubert, Maupassant, and Huysmans. Prerequisite: FR 302, 322; or permission of instructor.

455-4 Problems in French Literature
Selected topics in French literature that investigate various themes, myths, genres, literary movements, or characters. May be taken more than once with different subtitles. Prerequisite: FR 302, 322; or permission of instructor.

471-4 Introduction to Historical and Comparative Linguistics
(Listed jointly with Linguistics; see LI 471.)

481-4 Independent Reading for Advanced Students
Topics vary from quarter to quarter.

Geography/GEO

Lower Division Courses

101-4 Introduction to Physical Geography
A study of the elements of man's natural environment at regional and global scales including examination of the interactions among climate, soils, vegetation, landscapes, and man.

102-4 Introduction to Cultural Geography
A study of the major cultural elements of man's environment, including examination of their spatial interactions and factors influencing their location and distribution.

103-4 Introduction to Economic Geography
Examination of the principal geographic factors influencing man's activities related to production, exchange, and consumption of goods and services.

201-4 Principles of Physical Geography
Study of the geographic distributions of climates, soils, vegetation, and landforms in terms of the basic elements of the physical environment.

202-4 Principles of Cultural Geography
Study of the geographic organization of world societies, including an examination of spatial variations and interactions in cultural patterns throughout the world. Prerequisite: GEO 201.

203-4 Principles of Economic Geography
Study of geographic factors which influence the spatial patterns of production, exchange, and consumption of goods and services. Prerequisite: GEO 202.

225-4 World Regional Geography
A discussion of the nature of selected world regions and their spatial relationships. Emphasis is given to the unique characteristics of the cultures and landscapes of these regions, applying basic geographic concepts.

230-4 Introduction to Climatology
Observation, measurement, and analysis of climatic elements and controls, climatic classification, and relation of climate to man's economic and social activities.

242-4 Introduction to Urban Geography
General nontechnical introduction to urban geography, focusing on major geographic concepts and principles relating to location, function, and structure of urban areas.

253-4 Location Theory
A study of theoretical aspects of the location of human activities. Introduction to theories and concepts regarding location and spatial arrangement of economic activities.

261-4 Introduction to Remote Sensing
Basic survey of imaging remote sensor types and their operational characteristics including sensors for the ultraviolet, visual, infrared, and microwave portions of the electromagnetic spectrum.

262-4 Concepts in Cultural Geography
Examination of the principal traditions and related conceptual structures of contemporary cultural geography. Emphasis on the intellectual and methodological thrusts of ecology, diffusion, landscape, perception, region, and spatial order.

271-4 Conservation of Resources
Economic and geographic appraisal of resource conservation in the world, emphasizing an analytic approach to the solving of such contemporary problems as human population growth, environmental quality, recreation and open space, and resource management.
275-4 Introduction to Urban Planning
Examination of the development of city planning as a professional discipline. Consideration of the contributions to planning by the arts and sciences. Selected activities and functions of contemporary urban planning agencies are viewed from the perspective of current urban problems.

285-5 Geographic Methodology
Examination of the nature, tools, methods, and techniques of geographic analysis. Emphasis on design, compilation, interpretation, and presentation of research materials. Required of all geography majors before completion of more than five courses of geography at the 300-level or above. Exceptions made with permission of department chair.

Upper Division Courses

302-4 Political Geography
Geographic appraisal of factors influencing evolution, structure, resource base, function, and associations of political units.

303-4 Space and Faith: Topics in Religion and Geography
(Taught jointly with Department of Religion; see REL 303.) The interrelation of religions and geographic factors in selected cultures of East and South Asia. May be repeated with different titles.

322-4 Principles of Geomorphology
Distribution of world’s landforms with emphasis on processes and systems functioning to shape the natural landscape. Attention to three-way interaction among landforms, other physical factors, and man.

331-4 Introduction to Meteorology
Development and application of first principles governing the atmosphere at rest and in motion. Examination of the general circulation; applied meteorology. Prerequisite: MTH 131 or permission of instructor.

334-4 Climatology for Earth Science Teachers
Interaction of weather and climate with various earth systems. Includes observation, measurement, and analysis of meteorological elements and controls. Not open to geography majors.

343-4 Concepts in Urban Geography
Examination of selected concepts, generalizations, and research methods of urban geography with emphasis on the spatial structure of residential populations, distribution of social pathologies, and segregation of social groups.

354-4 Geography of Manufacturing
Factors of industrial location utilizing empirical examples. Includes introduction to basic theories and techniques underlying the decision process in manufacturing locations.

360-4 Systematic Geography
Analysis of various geographic factors. Specific topic or field of concentration announced each time course is offered. May be repeated to a maximum of fifteen credit hours.

362-4 Remote Sensing of the Environment
An application of remote sensing techniques to environmental and resource problems. Emphasis on optimizing sensor selection to enhance image information content.

365-5 Cartography
Principles of map projections, their construction and use in illustrating geographic relationships. Includes methods of design, compilation, and graphic representation of data.

370-4 Regional Geography
Physical and cultural analysis of major and minor world regions. Specific topic announced each time course is offered. May be repeated to a maximum of fifteen credit hours.

376-4 Principles of Planning
Includes the role of planning in urban structures, and duties and responsibilities of planning commissions; process of preparing comprehensive plans; population change, the economic base, and employment change; determinants of future urban structure. Prerequisite: GEO 275 or permission of instructor.

432-4 Intermediate Climatology
Principles of physical and dynamical climatology. Evaluation of local and regional transports and conversions of energy in the earth-atmosphere system. Prerequisite: GEO 331.

445-4 Intermediate Cartography and Map Interpretation
Study and practice of compilation processes for the development of maps and models utilizing primary data sources. Prerequisite: GEO 365 or permission of instructor.

446-4 Map and Photo Interpretation
Uses of map and photographic data in close and long range photogrammetry. Emphasis given to the full spectrum of photo interpretation as applied to the controlled mapping of terrestrial and marine surfaces. Prerequisite: GEO 445 or permission of instructor.
458-4 Human Perception in Resource Management
Spatial factors influencing human response and decision making in resource-use schema. Study of how man perceives environmental elements and apprehends resources and natural hazards such as floods and droughts.

463-4 Geographic Applications for Remotely-Sensed Data
Application of geographic methodology to problems employing photographic and machine-processed multispectral scanner data that are in contemporary use in academic research, environmental analysis, and planning. Prerequisite: GEO 362 or permission of instructor.

466-4 Seminar in Urban Geography
Geographic perspective in the study of cities. Recent developments in theory, method, and techniques in urban geographic research, with emphasis on the behavioral approach. Prerequisite: GEO 343 or permission of instructor.

477-4 The Land Use Plan
The process of preparing comprehensive urban plans. Methods for assessing land use conditions, housing patterns, and urban deterioration. Students expected to participate in the development of a land use plan for a selected area. Prerequisite: GEO 376.

478-4 Urban Planning Seminar
Examination of urban plans and planning proposals. Includes future land use plans, community facilities and public utility plans, and traffic and circulation plans. Considers modern theories of planning and the planning and design of new communities.

479-5 Landscape Analysis for Urban Planning
A systematic approach to landscape analysis for urban site planning using basic data sources. Emphasis is given to landscape capabilities for satisfying human needs and uses. Requires a one-day field trip. Junior or senior standing required. Prerequisite: GEO 376 or permission of instructor.

481-1 to 4, 482-1 to 4 Special Problems in Geography
Research and problems designed for specific needs and talents of the students. Topics vary from quarter to quarter. Departmental approval required.

484-3 to 4 Biogeography
(Listed jointly with Department of Biological Sciences; see BIO 484.) Introduction to factors affecting the geographical distribution of plants and animals. Students registering for three credit hours attend lectures only; registration for four credit hours requires an additional laboratory section. Prerequisite: GEO 101, 230, or permission of instructor.

492-1 to 6 Geography Internship
An internship providing geography majors fifteen clock hours of practical experience under academic supervision each week during the quarter with a cooperating public agency or private firm. Topics vary from quarter to quarter. May be repeated once. Junior or senior standing and departmental approval required. Enrollment limited to geography majors.

493-4, 494-4 Honors Project in Geography
Provides the geography major of superior academic ability the opportunity to use, broaden, and demonstrate the knowledge and skills acquired. Departmental approval required.

Geological Sciences/GL

101-3 Introductory Geology I
Introduction to physical and chemical processes that have operated to produce the earth, its minerals, rocks, land forms, and economic mineral fuel deposits. Corequisite: GL 104.

102-3 Introductory Geology II

103-4 Topical Concepts in Geology
Lecture: topics of current interest and their relationships to geology. Recitation: demonstrations, discussions, exercises pertinent to the particular topic. 3 hours lecture, 2 hours lab. Recommended preparation: GL 102.

104-1 Introductory Geology I Laboratory
Introduction to the process of crystallization and mineral formation. Rock identification and topographic map interpretation. Folding and faulting of rock strata.

105-1 Introductory Geology II Laboratory
Introduction to geological maps and their interpretation. Fossil identification, paleoenvironmental interpretation, and plate tectonic exercises.
111-4 Introductory Geology Honors
A general discussion of the earth's composition and structure with particular reference to the crust, ocean, and atmosphere and the processes by which they interact. Generally includes one or two short field trips. 3 hours lecture, 2 hours lab.

112-4 Introductory Geology II Honors
A summary of what is believed about the earth's history from the time of its origin to the present. Among the main topics discussed are evolution, climatic changes, and movement of the earth's crust. 3 hours lecture, 2 hours lab.

113-4 Introductory Geology III Honors
Study of some geological topics related to human life and activities. Attention is divided equally between natural systems in which man has an interest, natural resources, and geologic hazards. Generally includes a field trip. 3 hours lecture, 2 hours lab.

151-3 Physical Geology
Comprehensive treatment of the geological processes which affect the origin, form, and structure of the earth and its internal and external features and the physical and chemical factors which direct these processes. Offered annually.

152-3 Historical Geology
History of the earth, including geologic history of all of earth's continents. Review of origin of earth, development of the rock record, evolution of diverse life forms to produce a biological and physical history of the earth. Recommended preparation: GL 151.

154-1 Physical Geology Laboratory
Introduction to minerals and rocks, landforms, and external processes. Optional field trip. Should be taken concurrently with GL 151.

155-1 Historical Geology Laboratory
Introduction to the fossil record, stratigraphic correlation, and the interpretation of simple geologic maps. Should be taken concurrently with GL 152.

199-1 to 4 Directed Studies
Research and problems related to specific needs and talents of students. Permission of instructor required.

GL 102 or 152 is recommended preparation for the following courses in addition to the listed prerequisites.

201-4 Water Resources
Hydrologic cycle; emphasizes past, present, future problems in flood control, water pollution, water resource development. 3 hours lecture, 2 hours lab or field trip.

203-4.5 Minerals and Rocks
Structure, symmetry, composition of minerals. Composition, classification, origin of rocks. Lab emphasizes mineral and rock identifications. 3 hours lecture, 3 hours lab. Offered annually.

204-3 Earth Resources and the Environment
Effects of exploitation of earth resources on the environment; effects of population and urban growth on vanishing assets. Location and conservation of earth resources in relation to urban expansion.

205-3 Urban Geology
Study of the effect of geology on the historical development of cities. Use of geological reasoning in city and regional planning stressed. For students with no background in geology.

234-4 Geology of the Smoky Mountains Area
Geological development of the Smoky Mountains area studied through lecture, examination of literature, and direct observation in the field. Emphasis on geologic processes that developed the present landscape and geologic history.

Advanced Courses

301-6 Crystallography and Optics
Introduction to symmetry of crystals and crystal optics. Determination of optical constants of crystals by polarizing microscope. 3 hours lecture, 6 hours lab. Recommended preparation: GL 102, CHM 141, and sophomore standing. Offered annually.

302-4 Earth Resources in World Affairs
Brief survey of geologic and geographic distribution of earth resources. Investigations and discussions into stimulus of the erratic distribution of earth resources in world history. 3 hours lecture, 2 hours lab. Permission of instructor required.

305-4 Mineral Deposits
Genesis, classification, and description of economic mineral deposits exclusive of petroleum deposits. Role of economic deposits in world affairs. 3 hours lecture, 2 hours lab. For nongeology majors.

309-4 Environmental Geology
Impact and interrelationship of geological processes on the quality of life and the works of man. 3 hours lecture, 2 hours lab or field trip.

311-4.5 Introduction to Structural Geology
Concepts of stress, strain, and material behavior used to describe and explain how rocks deform. Depositional structures. 3 hours lecture, 3 hours lab. Offered annually.
196 Courses/Geological Sciences

312-4 Advanced Structural Geology
Development of theory of rock behavior. Finite strain and gravity tectonics. 3 hours lecture, 2 hours lab. Recommended preparation: GL 311.

320-4 Earth Systems
Core curriculum course for geology majors dealing with physical and chemical composition and features of the earth as a planet. 3 hours lecture, 2 hours lab. Recommended preparation: GL 320.

321-4 Evolution of the Earth
Core curriculum course stressing the evolution of the earth and its major features through geologic time. 3 hours lecture, 2 hours lab. Recommended preparation: GL 321.

322-4 The Earth and Man
Core curriculum course emphasizing and relating subdisciplines and areas of geologic application. 3 hours lecture, 2 hours lab. Recommended preparation: GL 321.

330-4.5 Paleontology I
Morphology, geologic record, and geographic distribution of major invertebrate groups characterized by significant fossil representation. 3 hours lecture, 3 hours lab. Recommended preparation: GL 102. Offered annually.

331-4.5 Paleontology II
Morphology, geologic record, and geographic distribution of major vertebrate and plant groups characterized by significant fossil representation. 3 hours lecture, 3 hours lab.

333-4.5 Stratigraphy
Principles, rules, and techniques of correlation. Relationships between surface and subsurface correlation. Geologic and geophysical correlation techniques. 3 hours lecture, 3 hours lab. Offered annually.

365-3 Regional Geomorphology
The distribution, position, and surface form of geologic regions of the United States; a study of the geologic structure that underlies them and the erosional processes that have modified their surface expressions. Advanced standing required. Prerequisite: GL 203.

399-1 to 6 Special Problems
Research problems for specific needs and talents of the student. Topics vary from quarter to quarter. Junior standing required.

400-3 Introduction to Solid Earth Physics
The basics of seismic, gravimetric, magnetic, and heat conduction principles as used to determine the geophysical properties of solid earth. Emphasis is on the deeper parts of the crust, the mantle, and the core. Junior standing required. Prerequisite: MTH 132.

403-2 Geologic Literature and Research Methods
Introduction to literature sources in the geologic sciences. Critical analysis of material in the literature. Research paper required.

410-6 Mineralogy
Lecture: chemistry and physics of minerals. Lab: identification of minerals by microscopic, macroscopic, and x-ray techniques. 3 hours lecture, 6 hours lab. Recommended preparation: GL 301. Offered annually.

412-6 Petrology
Origin of igneous, metamorphic, and sedimentary rocks. Lab: use of thin sections for mineral identification, microscopic structures, and rock classifications. 3 hours lecture, 6 hours lab. Recommended preparation: GL 410. Offered annually.

413-5 Geochemistry
Principles governing distribution of elements within the earth. Introduction to geochemical research methods. 3 hours lecture, 4 hours lab. Recommended preparation: CHM 141.

415-4 Metamorphic Petrology
Lecture: petrographic and chemical changes that take place during metamorphism of different rock types. Lab: rock analysis using petrographic microscope. 3 hours lecture, 2 hours lab. Recommended preparation: GL 412.

416-4.5 X-Ray Techniques
Generation, spectrum, and absorption of X rays. Diffraction of X rays on crystals. Identification of crystals using powder cell dimensions of crystals. Solid solutions, 3 hours lecture, 3 hours lab. Senior or graduate standing or permission of instructor recommended.

417-3 Theoretical Hydrology
Introduction to mathematical and physical concepts in hydrology; equations of flow of groundwater; mathematical modeling of boundary value problems in hydrology; steady state and unsteady state behavior. Hydrologic problems to be modeled selected on basis of students' background and areas of interest. Permission of instructor recommended. Recommended preparation: MTH 333.

418-4.5, 419-4.5 Igneous Petrology
Occurrence, chemical and geological features, and genesis of selected families of volcanic rocks. 418 lab: microscopic study of volcanic rock suites. 419 lab: microscopic study of plutonic rock suites. 3 hours lecture, 3 hours lab. Recommended preparation: GL 412.
420-3 Tectonics
Existence of large-scale tectonic features as demonstrated by current geophysical measurements; their geologic interpretation. Permission of instructor recommended. Prerequisite: GL 311.

421-3 Resource Laws and Management Principles
Fundamental principles of managing natural resources; environmental law; role of the geologist as an expert witness in policy making; watershed and air resources control; resources bidding, leasing, and taxation; resource valuation; court cases.

422-5 Introduction to Geophysical Prospecting
(Listed jointly with Department of Physics; see PHY 422.) Introduction to principles of the gravity, magnetic, seismic, electrical, and radioactive prospecting. 3 hours lecture, 4 hours lab. Junior standing or permission of instructor required. Prerequisite: MTH 132 or permission of instructor. Offered annually.

423-4 Seismic Exploration
Study of the theory, observation, and analysis of seismic phenomena as applied to geologic exploration. 3 hours lecture, 2 hours lab. Prerequisite: GL 422 or permission of instructor. Offered annually.

424-4 Gravity Exploration
Study of the theory, observation, and analysis of gravitational phenomena as applied to geologic exploration. 3 hours lecture, 2 hours lab. Prerequisite: GL 422 or permission of instructor. Offered annually.

425-4 Topical Concepts in Geophysics
Special topics in geophysics. 3 hours lecture, 2 hours lab. Prerequisite: GL 400 or 422; or permission of instructor.

426-1 Geophysics Seminar
Literature survey and student presentations on selected topics in geophysics. May be repeated. Prerequisite: GL 400 or 422. Offered annually.

427-4 Regional Structural Synthesis
The synthesis of diverse structural, geophysical, and remote sensing data and their application to regional tectonic interpretation and natural resource evaluation. Prerequisite: GL 311/511, 312/643.

428-1 Geology Seminar
Selected geological topics discussed by students, guest speakers, and faculty.

429-4 Sedimentology
Clastic rocks, their mineralogy, texture, provenance, and classification. Nonclastic carbonates and other nonclastic rocks. Depositional environments; sedimentary structures. 3 hours lecture, 2 hours lab. Recommended preparation: GL 203, 410. Offered annually.

430-4 Photogeology
Includes the use of aerial photographs in the interpretation of lithology, stratigraphy, and structures. The use and advantages of photoanalysis are covered. Junior standing or permission of instructor required. Prerequisite: GL 102.

432-4 Carbonate Petrology
The character, composition, origin, and diagenesis of carbonate rocks are examined, utilizing ancient and modern examples. 3 hours lecture, 3 hours lab. Recommended preparation: GL 301.

434-9 Field Geology
Geologic phenomena illustrated in the field. Introduction of mapping techniques and application of many geological disciplines to geologic analysis. Recommended preparation: GL 311 or permission of instructor. Offered annually.

435-4 Paleoecology
Interpretation of environments of the geologic past based on physical, chemical, and biological characteristics of deposits. Emphasis on recent analogues of past environments. 3 hours lecture, 2 hours lab. Recommended preparation: GL 430 or permission of instructor.

436-4 Biogeochimistry
Effects of organisms in geochemical cycles, concentration and dispersion of elements on the earth's surface. Individual laboratory research projects. 3 hours lecture, 3 hours lab. Recommended preparation: GL 413, BIO 113 or 114.

437-4 Seismic Data Processing
Digital filtering, deconvolution, and migration of seismic data. Prerequisite: GL 423.

439-1 Seminar in Economic Geology
Allows students who have been introduced to the principles of economic geology in GL 440 to pursue the subject further and to study selected topics in detail. Prerequisite: GL 440.

440-3 Economic Geology
Genesis, classification, and description of economic metal-bearing mineral deposits. Recommended preparation: GL 412 or 413.

444-4 Formation Analysis
The theory, application, and interpretation of geophysical logs with emphasis on their use in correlation and determination of porosity, permeability, and fluid content of subsurface formations. 3 hours lecture, 2 hours lab. Senior standing or permission of instructor required.
445-4 Geology of Earth Energy Resources
The geology of natural energy sources with emphasis on fossil fuels, especially petroleum and gas, but including geothermal energy and radioactive ore deposits. Explores geological and geographic distribution, genesis, exploration, production, governmental controls, and economic concerns. 3 hours lecture, 2 hours lab. Senior standing or permission of instructor required.

448-4 Sedimentary Geochemistry
The origin of sedimentary materials resulting from chemical processes. The structures of minerals in sedimentary materials (carbonates, clays) and their changes, with emphasis on properties and identification. 3 hours lecture, 2 hours lab. Prerequisite: GL 429.

449-3 Evolution of Sedimentary Rocks
A quantitative study of the sedimentary rock mass and the fluxes that supply and deplete it, and a review of mathematical models describing the sedimentary cycle. Prerequisite: GL 429.

451-4.5 Regional Hydrology
Survey of hydrology covering the hydrologic cycle and budget, precipitation, water losses, runoff, the drainage basin, the principles of statistical data analysis, Analysis of physical properties of waterbearing materials, groundwater movement, elementary well hydraulics, and the groundwater basin. 3 hours lecture, 3 hours lab. Recommended preparation: MTH 133. Offered annually.

456-4.5 Engineering Geology I
Principles of engineering geology; application of geologic principles to engineering works. Impact and interrelationship of geologic processes on man's construction efforts. 3 hours lecture, 3 hours lab. Offered annually.

457-4.5 Engineering Geology II
Engineering geology case studies. Review of classic and unusual engineering geology projects chosen from both published and unpublished sources to illustrate geological processes, problems, and solutions. 3 hours lecture, 3 hours lab. Offered annually.

463-4 Geologic Applications of Remote Sensing
Familiarizes geology students and trains them in the applications of remote sensors to general field geology and more explicitly to exploration (mineral and petroleum) geology. Emphasis is on the end product of the remote sensor. Recommended preparation: introductory geology sequence.

470-4.5 Advanced Crystallography
Symmetry of crystals, plane groups, and space groups. Single crystal diffraction methods used to study symmetry and lattice of crystals. 3 hours lecture, 3 hours lab. Senior or graduate standing and permission of instructor recommended.

471-4.5 Crystal Structure Analysis I
Theoretical and practical aspects of methods used to determine arrangement of atoms in crystals. 3 hours lecture, 3 hours lab. Recommended preparation: GL 470 or 670, or permission of instructor.

472-4.5 Crystal Structure Analysis II
Advanced crystal structure analysis. Partially disordered crystals. 3 hours lecture, 3 hours lab. Recommended preparation: GL 471 or 671, or permission of instructor.

473-4.5 Crystal Structure Imperfections
Imperfections in crystals; their study using microscopy and diffraction. Effect of imperfections on transformations in solids. 3 hours lecture, 3 hours lab. Recommended preparation: GL 470 or 471, or permission of instructor.

495-4 Geochemical Prospecting
Theory, techniques, and application of geochemistry to the exploration for economic mineral deposits including hydrocarbons. 3 hours lecture, 2 hours lab. Permission of instructor required.

498-3 Regional Geology
Literature on the geology of a region is studied in seminars during the quarter. Between terms specific areas of the region will be visited and examined on a field trip. Advanced standing required. May be repeated.

499-1 to 6 Special Problems
Research problems for specific needs and talents of the student. May be taken for letter grade or pass/unsatisfactory at option of department. Senior standing required.

German/GER

101-4, 102-4, 103-4 First-Year German
Study of the vocabulary and structure of the German language; practice in conversation, reading, and writing. Must be taken in sequence.

111-4 Essentials of German
Introduction to German with an emphasis on speaking the language.

115-4 German for Reading Knowledge
For students interested in acquiring a reading knowledge of German. Introduction to all main points of grammar; practice in recognizing grammatical constructions and using a dictionary; selected readings of adult-level texts from various fields. May be taken for letter grade or pass/unsatisfactory.
201-4, 202-4 Second-Year German
Grammar review, reading and discussion of selected texts, with practice in speaking and writing the language. Must be taken in sequence. Prerequisite: GER 103 or equivalent.

215-4 Scientific German
Intensive reading in all areas of expository and technical German. Prerequisite: GER 102 or equivalent.

Advanced Courses
301-4, 302-4 Survey of German Literature
Historical survey of German literature from its beginning to the present. 301: literature of the Middle Ages, Renaissance, Reformation, Enlightenment, Storm and Stress. 302: Classicism, Romanticism, Poetic Realism, Modern Period. Prerequisite: GER 202 or equivalent.

321-4, 322-4 German Composition
Oral and written composition in German; translations from English into German. Further grammar study. Prerequisite: GER 202 or equivalent.

341-4, 342-4 German Conversation
Emphasis on the culture of the German-speaking world. Prerequisite: GER 202 or equivalent.

GER 302 and 322 or permission of instructor are prerequisites for the following advanced courses.

351-4 German Culture and Civilization
Survey of cultural influences and of political, social, economic, religious, educational, and cultural institutions.

361-4 Introduction to Germanic Folklore
A survey of Germanic folklore as it relates to literature.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of German.

403-4 Advanced Studies: Language/Civilization
Variable content. Topic chosen by instructor. Conducted in German. Prerequisite: GER 342 or permission of instructor.

405-4 Early German Literature
German literature from the earliest times to the Reformation.

406-4 Renaissance and Reformation
Representative German authors of the period.

410-4 Baroque
Representative German authors of the period.

415-4, 416-4 German Literature of the Eighteenth Century
415: representative authors in Rococo, Enlightenment, Storm and Stress. 416: representative works of Goethe and Schiller.

417-4 German Romanticism
Study of the romantic movement with representative works of Schlegel, Novalis, Wackenroder, Tieck, Eichendorff, Hoffmann, and others.

418-4 Goethe’s Faust
Intensive study of Faust I and Faust II.

425-4, 426-4, 427-4 German Literature of the Nineteenth Century

431-4, 432-4, 433-4 German Literature of the Twentieth Century
Readings and reports in twentieth-century literature. 431: prose. Representative works of Hesse, Mann, Kafka, and others. 432: drama. Representative works of Schnitzler, Hofmannsthal, Kaiser, Toller, Brecht, and others. 433: poetry. Representative works of Rilke, George, Trakl, Benn, and others.

434-4 Thomas Mann
Studies of the writings of Thomas Mann.

442-4 History of the German Language
450-1 to 4 Undergraduate Research in German
Topics vary from quarter to quarter.

471-4 Linguistics
(Listed jointly with Linguistics; see LI 471.)

481-4, 482-4 Independent Reading for Advanced Students
Topics vary from quarter to quarter.

Greek/GR
Students who have studied Greek elsewhere should consult the Department of Classics for appropriate course level. Placement and proficiency tests can be given.

101-4, 102-4, 103-4 Beginning Greek
Essentials of the Greek language. Must be taken in sequence.

201-4, 202-4 Intermediate Greek
Review of essentials and reading for comprehension in selected authors. Must be taken in sequence. Prerequisite: GR 103 or equivalent.
Reading Courses

The following courses offer a variety of authors and topics; they may be repeated for credit by number, although not by content. Students should consult the department for the scheduled subjects and authors. GR 202 or equivalent is prerequisite for all 300- and 400-level language courses.

351-4 Readings in Greek Drama
Aeschylus, Sophocles, Euripides, Aristophanes, Menander. Study of at least one play in Greek. Topics for investigation include origin and development of tragedy, drama as a reflection of contemporary events, development of New Comedy.

353-4 Readings in Greek Poetry
Greek epic and lyric poetry: epics of Homer and Hesiod, the Homeric Hymns, the early lyric poets such as Archilochus and Sappho, the Hellenistic poets. Topics for investigation include structure and technique of oral epic, the didactic tradition, lyric meters and diction, the development of pastoral poetry.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of Greek.

451-4 Readings in Greek Philosophy
Plato, Aristotle, Epicurus, Epictetus, Marcus Aurelius. Topics for investigation include pre-Socratics and the development of philosophical vocabulary, the sophistic movement, the Cynic tradition, the development of popular philosophy.

453-4 Readings in Greek History
Herodotus, Thucydides, Xenophon, Polybius, Plutarch. Topics for investigation include methods of composition, influences on historiography from the sophists and philosophers, the development of Greek historical writing, supplemental evidence from inscriptions and nonliterary sources.

455-4 Readings in Greek Politics and Political Theory
Lyssias, Demosthenes, Isocrates, Old Oligarch, Plato, Xenophon, Aristotle. Topics for investigation include development of political ideas and vocabulary, nonliterary sources for our knowledge of Greek civil life, influences on Roman theories and practices.

481-1 to 4 Independent Reading
Restricted to senior candidates for departmental honors.

Health, Physical Education, and Recreation/HPR

100-2 Physical Education—Beginning
Instruction in the fundamental skills and knowledge of one particular activity. Competency-based approach. Students should check competency levels posted in Physical Education Building before enrolling.

101-2 Physical Education—Intermediate
Instruction through the intermediate level of skills and knowledge in one particular activity. Competency-based approach. Students should check competency levels posted in Physical Education Building before enrolling.

102-3 Physical Education—Advanced
Instruction through the advanced level of skills and knowledge in one particular activity. Competency-based approach. Students should check competency levels posted in Physical Education Building before enrolling.

103-3 Life Saving
Knowledge and skills for safety in and on the water; assisting or rescuing a person in danger of drowning. Red Cross Senior Life Saving test administered. Competency-based approach. Students should check competency levels posted in Physical Education Building before enrolling. Prerequisite: HPR 101, or equivalent, or permission of instructor.

104-3 Aquatic Supervisor
Advanced life saving skills and pool supervision techniques. WSI certification awarded when course is completed. Competency-based approach. Students should check competency levels posted in Physical Education Building before enrolling. Prerequisite: HPR 103 or equivalent competency.

105-2 Physical Education for the Disabled Student
Recreational and sport activities for the physically limited student. Course may be repeated for credit. Open to physically limited students. Medical referral form and appointment with instructor required.

106-3 Skin and SCUBA Diving—Openwater
Classroom, pool, and openwater instruction fulfilling all requirements for national certification. Course qualifies the diver to safely and enjoyably pursue all activities involved in sport diving. 2 hours lecture, 2 hours lab. Prerequisite: HPR 100 (Beginning Swimming).

107-3 Skin and SCUBA Diving—Experienced Openwater
Classroom and supervised openwater sessions designed to provide a variety of unique openwater experiences and increase appreciation for the aquatic environment. National diver certification and permission of instructor required. Prerequisite: HPR 106.
108-3 Skin and SCUBA Diving—Advanced Openwater
Provides advanced theory and a wide variety of experiences including ocean diving, Great Lakes diving, and CPR certification. 2 hours lecture, 2 hours lab, and openwater dives. National diver certification and permission of instructor required. Prerequisite: HPR 107.

111-3 Teaching Adapted Aquatics
Red Cross certification course in adapted aquatics. Concepts are given regarding teaching techniques, disabilities, and basic rescues specific to the population involved. Lab experience required. Prerequisite: HPR 100.

151-4 Total Fitness Lifestyle
Assessment, prescription, participation, and reassessment of fitness variables, including cardiovascular fitness, strength, blood lipids, and body composition. Permission of instructor required.

170-3 Principles of Physical Fitness
Instruction concerning principles of physical fitness, including aerobic fitness, muscular fitness, and evaluation of current concepts regarding diet and exercise. Demonstrations of measuring aerobic and muscular fitness, body composition determination, and graded exercise testing.

200-3 Introduction to Adapted Physical Education
Physical and psychological considerations and problems in adapting physical activities to individual needs of handicapped persons, standard classifications; exercises and adaptations appropriate for each classification.

201-3 Athletics for Exceptional Populations
Rules and certification requirements of the various athletic opportunities for exceptional populations. Includes discussions of adaptive devices and special facilities used for these programs. Prerequisite: HPR 200.

210-3 Introduction to Motor Development for the Awkward Child
An introduction to sensory and motor development of infants and children. Examination of current sensory-motor theory and programs, and how they relate to the awkward or clumsy child.

211-3 Sensory-Motor Skills of Young Children
An examination of sensory-motor skills that are used to manage information coming to the individual through the senses. Twenty-two skills are defined and illustrated.

230-5 Personal Health
Discussions of personal health problems including basis for mental health, maintenance of health and selection of health services, physical fitness, nutrition, quackery, industrial and home safety, and health of the preschool child.

233-4 Fundamental Movement
Examination of the basic content areas of physical education for grades K-6. Includes motor activities that aid the elementary age child in developing fundamental movements. Students must demonstrate their cognitive and psychomotor abilities.

240-2 Problems in Health Education
Discussions of the student’s problems with individualized assignments. Course content designed by the students enrolled. Participation experiences expected during enrollment in course. Enrollment limited to health education minors. Prerequisite: HPR 230, BIO 301.

241-3 Introduction to Physical Education
Nature and scope of physical education from past to present, with emphasis on the present and future. Field experience required.

242-2 Problems in Physical Education
Discussions of the student’s problems with individualized assignments. Course content designed by the students enrolled. Participation experiences expected during enrollment in course. Prerequisite: HPR 241.

250-3 Child and Adolescent Movement Behavior
The influences of growth and development on movement learning and performance. Implications for the teaching of physical education stressed. Sophomore standing required.

260-3 First Aid
A comprehensive study of first aid techniques and procedures in emergency treatment. 2 hours lecture, 2 hours lab.

261-4 Athletic Training I
An introductory course to the field of athletic training. Field experience required. 3 hours lecture, 2 hours lab. Course may not be taken concurrently with HPR 384. Prerequisite: HPR 260.

281-3 Physical Education for the Elementary School
Curriculum and materials for elementary school physical education; emphasis on objectives, evaluation, planning, resources, and facilities, and curricular trends. Required of all students preparing to teach in the elementary school.
202 Courses/Health, Physical Education, and Recreation

284-3 to 15 Practicum in Health, Physical Education, and Recreation
Supervised field work for sophomore students who are seeking certification or a concentration in a specific area (subtitles to indicate specific area). Contact hours vary according to subject. May be repeated as required. Sophomore standing and permission of instructor required.

300-3 Physical Activities for the Mentally Retarded and Behaviorally Disordered
Concepts and programming in physical education for trainable and educable mentally retarded and emotionally disturbed children and adults. Emphasis upon foundations of motor skills, teaching techniques, and appropriate selection of activities. Field experience required. Prerequisite: HPR 200.

301-3 Physical Activities for the Physically Limited
Concepts and programming in physical education for physically limited people with emphasis upon principles of exercising, adaptive devices, and methods of modifying games and sport activities. Field experience required. Prerequisite: HPR 200.

302-2 Problems and Issues in Adapted Physical Education
School administrative problems and current issues as they relate to adapted physical education and related areas. Prerequisite: HPR 241, 301.

303-3 Therapeutic Exercise
Methods of evaluating students and design of individual exercise programs for students with temporary or permanent physical limitations. Prerequisite: ANT 202; for special education majors only, BIO 301.

310-4 Developmental Activities for the Awkward Child
Movement activities that will aid the awkward child in developing sensory and motor skills. Equipment and materials necessary to provide appropriate movement activities. Prerequisite: HPR 210.

311-3 Sensory-Motor Development: An Interdisciplinary Approach
Sensory-motor development of children as it relates to various academic disciplines: reading, writing, art, music, adapted physical education, special education, and dance.

330-4 Community Health
In-depth treatment of public health problems, including study of agencies, diseases, food inspection, safety, and ecology.

331-4 Health and First Aid for the Classroom Teacher
Discussions of health-related issues for elementary school-age children, and a comprehensive study of first aid techniques and procedures in emergency treatment for the elementary classroom teacher.

340-3 Organization and Administration of Physical Education Programs
Administrative procedures and problems connected with physical education programs, including scheduling, facilities, personnel problems, and public relations. Prerequisite: HPR 241.

341-3 Aquatic Program Development
The development of aquatic shows and demonstrations to include water ballet, water shows, synchronized swimming, and other aquatic extravaganzas. Prerequisite: HPR 100 (Beginning Synchronized Swimming).

342-3 Issues in Athletic Administration
Study of administrative strategies and problems related to competitive athletics. Prerequisite: HPR 242 or permission of instructor.

350-4 Kinesiology
Analysis of muscular interrelationships in basic body movements; analysis of principles of mechanics as they relate to fundamental and complex motor skills in physical education activities. Prerequisite: ANT 202.

351-4 Exercise Physiology
Physiological adjustments and changes occurring in the human organism as a result of physical activity. Physiology of muscular contraction and role of circulatory and respiratory systems in exercise. 3 hours lecture, 2 hours lab. Prerequisite: PHS 218.

352-4 Applied Kinesiology
Study of the applications of kinesiology to physical education. 3 hours lecture, 2 hours lab. Prerequisite: HPR 350.

353-3 Video Analysis in Sport
Designed to explore the use of video technology in the analysis of sport movements and game strategies. Prerequisite: HPR 350; ED 327, 328, 329.

354-3 Psychology of Coaching
Study of the role of psychology in the total athletic spectrum. Prerequisite: ED 215.

355-3 Facts and Theories of Physical Conditioning
Study of past and present theories of physical conditioning, including methods of development and implementation for the physical educator, coach, and athletic trainer. Prerequisite: HPR 351.
380-5 **Methods of Teaching Health**
Theory and application of health instruction, including materials, curriculum development, and discussions of a variety of teaching methods. Prerequisite: HPR 230, 330; ED 211 through 217.

381-4 **Methods of Teaching Physical Education**
Variety of teaching methods and when each can best be utilized. Junior standing required. Prerequisite: HPR 242.

382-3 **Curriculum and Materials in Physical Education**
Theory and application of physical education instruction, including materials, curriculum development, and discussion of a variety of teaching methods. Prerequisite: HPR 242; ED 211 through 217.

384-3 to 5 **Practicum in Health, Physical Education, and Recreation**
Supervised field work for junior students seeking certification or a concentration in a specific area (topics to indicate specific area). Contact hours vary according to subject. May be repeated as required. Junior standing and permission of instructor required.

400-3 **Aquatic Instruction for the Handicapped**
A course for aquatic specialists leading to improvement in teaching aquatics to handicapped people. Prerequisite: HPR 200; ED 329.

410-4 **Sensory-Motor Assessment**
Techniques of assessing the sensory-motor abilities of awkward children. Prerequisite: HPR 211.

411-3 **Sensory-Motor Theories**
An in-depth analysis of a particular sensory-motor theory; the basis for the theory, the testing procedures, and the activity program; the theory studied will change from year to year. Junior standing required.

419-5 to 15 **School Nursing Practicum**
Supervised experiences in the public schools. Restricted to those working toward certification in school health nursing. Prerequisite: HPR 440.

430-1 to 3 **Coaching Theory**
The theory, skills, strategies, and organization principles of coaching a particular sport. Typical sports covered include baseball, basketball, football, soccer, and volleyball. Junior or senior standing required. Prerequisite: HPR 101 in same sport.

435-3 **Officiating**
A study of the rules and techniques of officiating a particular sport. Typical sports covered include baseball, basketball, football, soccer, and volleyball. Junior or senior standing required. Prerequisite: HPR 101 in same sport.

440-4 **School Health Services**
Study of health services provided by our public schools; techniques for increasing student knowledge of healthful practices. Junior or senior standing required.

450-4 **Motor Learning**
Relationship of psychology to motor skill learning; application to teaching stressed. 3 hours lecture, 2 hours lab. Prerequisite: ED 211 through 217.

460-3 **Athletic Training II**
Advanced problems found in the identification of injuries related to athletic participation. Prerequisite: HPR 261, 384.

480-3 **Measurement and Evaluation in Physical Education**
Nature and purpose of measurement in physical education. Evaluation of available tests; practice in administration of pertinent test. 1 hour lecture, 2 hours lab. Prerequisite: HPR 241.

481-3 **Research Methods in Physical Education**
Introduction to basic research procedures in health, physical education, and recreation which includes a review of the statistical procedures pertinent to physical education; the format for thesis writing also is discussed. Prerequisite: HPR 242, 480.

484-3 to 15 **Practicum in Health, Physical Education, and Recreation**
Supervised field work for senior students seeking certification or a concentration in a specific area (sub titles to indicate specific area). Contact hours vary according to subject. May be repeated as required. Senior standing and permission of instructor required.

488-1 to 6 **Independent Study**
Independent reading, writing, and/or reporting in areas related to health, physical education, or recreation. Topics vary from quarter to quarter. Senior standing and approval of program coordinator and instructor required.

489-1 to 6 **Workshop in Health, Physical Education, and Recreation**
An intensive study of content, curriculum, method, or materials (sub titles to indicate specific area) designed to meet the needs of preservice and inservice professionals in health, physical education, and recreation. Permission of instructor required.
204 Courses/History

**History/HST**

**Lower Division Courses**

111-4, 112-4 *American Civilization*
Thematic survey of events, forces, groups, and individuals that contributed to and helped to shape an American civilization on the North American continent. 111: colonial foundations to 1877. 112: 1877 to the present.

121-4, 122-4 *European Civilization*
Western culture from beginning of modern times to present; emphasis on art, literature, philosophy, institutions, cultural and intellectual movements, ideas, man, and forces. 121: 1450 to 1815. 122: since 1815.

131-4, 132-4 *Asian Civilization*
Cultural styles, political institutions, and historical highlights of India, China, and Japan. 131: traditional background. 132: modern transformation.

142-4, 143-4 *Latin America*
Evolution of Latin American nations from colonies to republics, with emphasis on intellectual, cultural, institutional, social, political, and economic history. 142: conquest to mid-nineteenth century. 143: mid-nineteenth century to present, with emphasis on twentieth century revolutions.

199-1 to 4 *Studies in Selected Topics*
Course of variable content dealing with problems, approaches, and topics in the field of history. May be repeated as often as topics vary.

214-4, 215-4 *The Afro-American in United States History*
Survey of black people in American society from colonial slave trade to the present. 214: African roots to the Civil War. 215: Reconstruction to the present.

216-4 *Introduction to Urban History: Sumeria to Suburbia*
Urban history in its broadest sense from the ancient world to the present, providing historical perspective to the contemporary urban-metropolitan phenomenon and exploring "how" and "why" urban civilization came to be.

218-4, 219-4 *History of Ohio: Frontier to Factory*
French, British, American, and Indian conflict for control of Ohio; movement to statehood; evolution of political, economic, and cultural life from rural setting to industrialization and urbanization. 218: prehistory to 1871. 219: since 1871.

220-4 *The Ancient and Medieval Worlds*
Synthetic treatment of the tripartite Judaic, Graeco-Roman, and Christian contributions to Western civilization. (Previously listed as HST 120.)

224-4, 225-4 *The American Frontier*
The Westward movement, emphasizing life, thought, technical adaptations, clash of cultures, conflict of empires, and impact of the West. 224: the Atlantic to the Mississippi. 225: the Mississippi to the Pacific.

**Upper Division Courses**

No prerequisites except as noted in course descriptions.

300-4 *What Historians Do*
Introduction to methods historians use to understand and interpret the past. Required of history majors.

318-4 *Modern Japan*
Focuses on the phenomenal success of Japan's modernization since the imperial restoration in 1868, Japanese expansionism and imperialism and Japan's power as an example for non-Western areas embarking on modernization.

321-4, 322-4 *History of England*
321: Romans through civil war, 44 B.C. to A.D. 1688. 322: Restoration to the present, since 1688.

331-4, 332-4 *History of Canada*
Challenges and survival. 331: colony to nation, 1497-1867. 332: problems of Canadian nationalism, 1867 to present.

390-4, 391-4, 392-4 *Medieval Western Europe*
From the decline of the Western Roman Empire to ca. 1300. Primary emphasis on Italy, Germany, and France. 390: 285 to 814. 391: to 1100. 392: to 1300. Offered alternate years.

393-4 *Ancient Near East*
Politics and cultures of Mesopotamia, Egypt, Palestine, Syria to ca. 525 B.C. Offered alternate years.

394-4, 395-4 *History of Greece*
Minoan civilization, archaic and Hellenic Greece, and monarchies of the Hellenistic period, with stress on cultural history. 394: to 404 B.C. 395: 404-146 B.C. Offered alternate years.

399-1 to 4 *Studies in Selected Subjects*
Course of variable content dealing with problems, approaches, and topics in the field of history.

400-4 to 12 *History Honors Project*
Honors project, which may range from library research to field training. Approval of department curriculum committee and supervising professor required. Prerequisite: HST 300.
407-4, 408-4 History of Mexico
Growth and development of Mexico from struggle for independence to its present position of leadership in Latin America. 407: 1810-1876. 408: 1876 to present.

409-4 The Old Regime and the French Revolution
Designed to provide the student with an understanding of the French Revolution and the Old Regime background.

410-4 The Contemporary Middle East
An introduction to a complicated and critical region of the world and its peoples; special attention to the politics and cultures of the Arab states, Israel, Iran, and Turkey.

421-4, 422-4 Tudor-Stuart Britain
England through the break with Roman Catholicism and religious wars; religious, political, economic, and legal upheavals of Civil War and Glorious Revolution; 421: 1485 to 1603. 422: 1603 to 1714.

423-4, 424-4 English Constitutional and Legal History
423: to 1603. Examination of the growth of the English institutions of government: the jury system, the common law, Parliament, the judicial system, etc. 424: 1603 to the present. A continuation of HST 423 with concentration on the Constitutional crisis of the seventeenth century, the development of the cabinet, and nineteenth- and twentieth-century reforms.

425-4, 426-4 Nineteenth and Twentieth Century Britain
Political, social, economic, and intellectual trends, 425: from 1815 to 1900. 426: from 1900 to present.

427-4 History of Russia
Russia from the beginnings to 1855, through Nicholas I. A survey of the political, social, economic, and cultural history of Russia from the beginnings to the eve of the Great Reforms.

428-4 History of Russia
Russia: reforms, reaction, revolution, Bolshevism. A survey of Russia since 1855, from the period of the Great Reforms to the Brezhnev regime covering politics, diplomacy, revolutions, and the Soviet regime.

432-4 Colonial America
Founding and development of England's North American colonies from 1607 to 1750. Prerequisite: HST 111 or permission of instructor.

433-4 Revolutionary America
Revolutionary America from 1750 to 1789. Prelude to the Revolution, the struggle for independence, the constitution of 1787. Prerequisite: HST 111 or permission of instructor.

434-4 Early National America
The New Nation: America from 1789 to 1824, Era of Washington, Jefferson, Hamilton, and Madison and the conflicting forces they represented. Prerequisite: HST 111 or permission of instructor.

435-4 Jacksonian America
America from 1824 to 1850. Political ferment, economic change, reform impulses, and territorial expansion in the Age of the "Common Man."

437-4 The American Civil War
Causes of the war; political, social, economic, and cultural aspects of the war.

440-4 America in Transition
Development of the United States from the end of Reconstruction to the end of the nineteenth century. Offered alternate years.

441-4, 442-4, 443-4 Twentieth Century America
Political, economic, social, and cultural forces shaping American life. 441: to 1920. 442: 1920 to 1940. 443: since 1940. Prerequisite: HST 112 or permission of instructor.

444-4, 445-4 United States Thought and Society

447-4, 448-4 Men, Markets, and Machinery: American Economic Life
Developments in agrarian and commercial economy; forces sponsoring economic change and growth; issues concerning "take off" of economy, mechanization, mass production, and rise of industrial economy. 447: to 1840. 448: since 1840.

449-4, 450-4 United States Constitution, Law, and Society
Development of law in the United States, with emphasis on history of the Supreme Court. 449: to 1863. 450: since 1863.

453-4, 454-4 Age of Renaissance and Reformation
(Listed jointly with Department of Religion; see REL 453, 454.) Decline of European feudalism and rise of the nation-state; revival of culture and arts; decline of universal church and growth of religious diversity. 453: 1350 to 1500. 454: 1500 to 1648.

455-4 European Culture
A study of the emergence of Europe from the disastrous Thirty Years War and the search for stability in the new state system of the Old Regime.

456-4 European Culture
A study of the transformation of Europe from the Old Regime into modernity, with a special emphasis upon the French Revolution, its spread, and its legacy.
COURSES/HISTORY

457-4, 458-4 Nineteenth Century Europe
Reactions, revolutions, reforms, industrial and scientific progress; emergence of nationalism, liberalism, socialism, imperialism, industrialization, and international alliances. 457: 1815 to 1870. 458: 1870 to 1914.

464-4, 465-4 History of China
Unique institutions, paramount position in Asia, cultural values and lifestyles. 464: to 1800. 465: Western impact, dynastic decline, revolution, growth of nationalism and Communism from 1800 to the present.

467-4, 468-4, 469-4 Medieval Eastern Europe and the Near East
Events that shaped the troubled Byzantine Empire, including the rise of the Slavs and Islam, and the Crusades. 467: to 610. 468: 610 to 1025. 469: 1025 to 1453.

471-4 Religion in American Life
(Listed jointly with Department of Religion; see REL 431.) Development of religious thought and institutional life in the United States viewed in relation to American social change.

472-4 History of American Women
Examination of the history of American women in the seventeenth to twentieth centuries by exploring such topics as patterns of work, reform activities, education, family life, public activities, social expectations for women, and women’s own self-images.

474-4, 475-4 American Urban History
Development of American cities and urban civilization from formative years to the age of the metropolis. 474: to 1870. 475: since 1870.

477-4, 478-4 Russian-American Relations: American Revolution to the Present
Changing attitude of nineteenth-century United States toward Russia; post-1917 relations between the two “super-power” nations. 477: to 1945. 478: since 1945. Prerequisite: HST 112 or permission of instructor.

479-4 History of Modern Germany
Chronological view of Prussia and Germany since 1815. Particular attention is directed to nineteenth-century origins of German national thought, unification, World War I, the Weimar Period, and Nazism.

481-4, 482-4, 483-4 Ideas and Men in European History
Intellectual and cultural history from 1600 to the end of the nineteenth century; changing ideas and cultural trends, their influence on history and man’s actions. 481: 1600 to 1789. 482: 1790 to 1890. 483: 1890 to the present; the decline of middle class liberalism, communism, existentialism, fascism, etc.

484-4, 485-4 United States Diplomacy
484: early problems with Great Britain, France, Spain; expansion to 1900. 485: the United States as a world power in the twentieth century; to the end of World War II (1945). Prerequisite: for 484, HST 111 or permission of instructor; for 485, HST 112 or permission of instructor.

487-4 History of Black Education
A lecture/discussion course with emphasis on the socio-economic, political, and psychological forces that have shaped the education of African-Americans. Junior or senior standing required. Recommended preparation: survey course in educational theory or psychology. Prerequisite: HST 112 or 215.

490-1 to 4 Studies in History
Group study and research under faculty supervision. May be repeated as often as topics vary.

491-1 to 4 Independent Readings
Faculty-directed readings in field of student’s choice. Course usually requires reports and conferences with instructor. Permission of instructor and department chair required.

494-4, 495-4, 496-4 Roman Republic and Empire
Pre-Roman cultures of Italy to the death of Constantine. 494: the Early Roman Republic to 133 B.C. 495: Roman Republic and Empire to A.D. 68. 496: the High and Late Roman Empire to 337.

498-4 Historiography
Introduction to the work of representative historians and important theories of historical interpretation. Completion of twenty credit hours of history required.

ITALIAN/ITA

111-4 Essentials of Italian
Introduction to Italian with an emphasis on speaking the language.

LATIN/LAT

Students who have studied Latin elsewhere should consult the Department of Classics for the appropriate course level. Placement and proficiency tests can be given.

101-4, 102-4, 103-4 Beginning Latin
Essentials of the Latin language. Must be taken in sequence.

201-4, 202-4 Intermediate Latin
Review of essentials and reading for comprehension in selected authors. Must be taken in sequence. Prerequisite: LAT 103 or equivalent.
Readings Courses
The following readings courses offer a wide variety of authors and topics; they may be repeated for credit by number, although not by content. Students should consult the department for the scheduled subjects and authors. LAT 202 or equivalent is prerequisite for all 300- and 400-level language courses.

35-1-4 Readings in Roman Drama
Plautus, Terence, Seneca. Study of at least one play in Latin. Topics for investigation include importance of Plautus and Terence for the reconstruction of Greek New Comedy, architecture of the Roman theatre, history of Roman tragedy, relationship of Seneca's tragedies to his Stoic philosophy.

35-3-4 Readings in Roman Epic
Virgil's Aeneid, Ovid's Metamorphoses, Lucan, Statius, Valerius Flaccus, Silius. Topics for investigation include intent and structure of the Aeneid, history and development of Roman epic, structure and transitional devices in the Metamorphoses, nature of rhetorical epic.

35-5-4 Readings in Roman Poetry
Roman lyric and elegiac poetry; Virgil's Eclogues; Catullus, Horace, Propertius, Tibullus, Ovid. Topics for investigation include meters and style of Latin lyric, amatory tradition, influence of Hellenistic poetry.

35-7-4 Readings in Roman Satire
Horace, Juvenal, Persius, Petronius, Martial. Topics for investigation include development of this peculiar Roman genre, fragments of Lucilius, satirical methods and techniques, satiric epigram, satire as a source of information about Roman private life.

39-9-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of Latin.

45-1-4 Readings in Roman Didactic Literature
Study of Roman philosophical and didactic literature: Lucretius, Virgil's Georgics, Cicero's philosophical essays, Quintilian. Topics for investigation include Roman attitudes toward Epicureanism, farming as a symbol of contemporary Roman politics, Cicero's synthesis of Greek philosophy, Quintilian, and a gentleman's education.

45-3-4 Readings in Roman History
Sallust, Livy, Tacitus, Suetonius. Topics for investigation include Roman historiographical tradition, family and political influences, evidence from nonliterary sources, influence from Greek historiography.

455-4 Readings in Roman Politics and Government
Cicero's political essays and speeches; the letters of Cicero and Pliny. Topics for investigation include the nature of Roman political campaigns, selections from Roman constitutional law, information from inscriptions, Augustus' Res Gestae.

481-1 to 4 Independent Reading
Restricted to senior candidates for departmental honors.

Liberal Arts/LA
101-1 Images of Man
Multidisciplinary course composed of a series of presentations by experienced professors who present different concepts of man and man's contributions, past and present, from a humanistic point of view.

103-2, 105-4 Freshman Cooperative Education
Work experience in a Liberal Arts discipline. Faculty supervise and evaluate learning which requires planned and approved learning objectives, oral and/or written reports, employer evaluation, and conference with faculty supervisor. Approval of department, college, and cooperative education required. 103: part-time work experience. 105: full-time work experience. Each course may be repeated once.

199-1 to 2 Great Decisions
Faculty-led reading and discussion group centering on major foreign policy issues facing the United States. Topics vary each year.

203-2, 205-4 Sophomore Cooperative Education
Work experience in a Liberal Arts discipline. Faculty supervise and evaluate learning which requires planned and approved learning objectives, oral and/or written reports, employer evaluation, and conference with faculty supervisor. Approval of department, college, and cooperative education required. 203: part-time work experience. 205: full-time work experience. Each course may be repeated once.

303-2, 305-4 Junior Cooperative Education
Work experience in a Liberal Arts discipline. Faculty supervise and evaluate learning which requires planned and approved learning objectives, oral and/or written reports, employer evaluation, and conference with faculty supervisor. Approval of department, college, and cooperative education required. 303: part-time work experience. 305: full-time work experience. Each course may be repeated once.
Courses/Liberal Arts

314-4 Research Methods in the Social Sciences
For developing skills in creating, manipulating, documenting, and analyzing data bases using SAS. Includes planning for and acquiring computer-compatible data and practical applications in social science disciplines. Prerequisite: AIS 103 or CS 141 or equivalent.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of liberal arts.

403-2, 405-4 Senior Cooperative Education
Work experience in a Liberal Arts discipline. Faculty supervise and evaluate learning which requires planned and approved learning objectives, oral and/or written reports, employer evaluation, and conference with faculty supervisor. Approval of department, college, and cooperative education required. 403: part-time work experience. 405: full-time work experience. Each course may be repeated once.

490-1 to 6 Senior Project in Selected Studies
Intensive studies or work in a selected topic designed to meet the particular needs of participating students. The characteristics of each specific project must be approved by the Selected Studies Degree Committee. May be repeated to a maximum of eighteen credit hours. Senior standing and approval of the degree committee required.

Library and Communication
Science/LCS

110-1 Using the Library
Presents basic approaches for using the library. Includes the card catalog, library classification, indexes, and introduction to selected reference sources for use in research projects and term reports.

210-1 Using Business Information Sources
Survey course in the business information sources of the library. Covers standard business bibliography and reference information sources as well as government document sources. Students learn strategies for researching business reports in the library. Major in business or permission of instructor required.

370-1 to 4 Independent Study
Advanced individual study in an area not available through regular course offerings. Departmental approval required.

411-4 Reference Materials and Bibliography
Important reference works, indexes, and bibliographies with practical problems in their use. The student examines his/her role in the interaction between the user and the information environment. Offered fall and winter quarters.

421-3 Cataloging and Classification
Study of the development of the Dewey Decimal classification scheme and its application to library media center situations. The student learns the basic principles of descriptive cataloging, and receives instruction in the application of current cataloging rules, including subject headings. Offered fall and spring quarters.

435-4 Production of Instructional Materials
A nontechnical course, with emphasis on production of locally made materials for classroom use, including mounting, lettering, script-writing, photography, tape recording, transparency production. Offered fall, winter, and summer quarters.

445-3 Storytelling
Fundamental principles of the art of storytelling, techniques of adaptation and presentation. Broad foundation in materials of literature, styles of presentation, story cycles, methods of learning, practice in storytelling. Planning the story hour for the school and public library, recreational center, radio, and television.

446-3 Teaching Library and Research Skills in the Elementary and Secondary Schools
Study of the hierarchy of library and library research skills, ways to develop materials and to teach those skills; introduction to computer assisted information retrieval.

449-3 Introduction to Instructional Technology
Survey course in instructional technology that demonstrates the role of visual and auditory stimuli. Offered fall, winter, and summer quarters.

451-3 Educational Utilization of Broadcast Media
A study of the potential, the limitations, and the techniques for the utilization of broadcast media in the educational process.

455-4 Television Production
Survey of elementary problems of television production. Introduction to television techniques; participation on television productions in a wide variety of capacities. Programming utilization within the educational setting emphasized. Junior standing or departmental approval required.

456-4 Advanced Television Production
Designed to improve the skills, knowledge, and creativity used in television broadcasting. Programming and production for educational and informational broadcasts are emphasized. Prerequisite: LCS 455 or permission of instructor.
457-1 to 4 Studies in Broadcasting
Intensive study of a selected area of broadcasting to meet the needs of educational broadcasting personnel, audiovisual specialists, and others interested in media and communications. Specific title announced each time course is offered. Junior standing or departmental approval required.

461-3 Selection of Materials
Selection of materials suitable for the library media-learning center or the elementary/secondary school with special emphasis on nonprint materials.

463-3 Literature for Adolescents and Young Adults
The study of the literature appropriate for adolescents and young adults. Survey, evaluations, and selections of books, techniques of reading guidance, and promotion of books. Junior standing required.

470-1 to 6 Workshop in Library and Communication Science
Intensive study of a selected area of library and communication science to meet the needs of librarians, audiovisual personnel, and others interested in media and communications. Junior standing or departmental approval required.

481-1 to 12 Library/Media Practicum in the Elementary School
Supervised practice in a public school library. Formal application must be made through the office of the director of laboratory experiences in education during the first two weeks of the quarter prior to enrollment. May be taken concurrently with practice teaching. Prerequisite: LCS 411, 421, 461, 491. Offered fall, winter, and spring quarters.

482-1 to 12 Library/Media Practicum in the Secondary School
Supervised practicum in a public school library. Formal applications must be made through the office of the director of laboratory experiences in education during the first two weeks of the quarter prior to enrollment. May be taken concurrently with practice teaching. Prerequisite: LCS 411, 421, 449, 461, 491. Offered fall, winter, and spring quarters.

491-3 Organization and Administration of School Media Centers
Administration practices and services that relate to the school library media center. Considers problems pertaining to standards, legislation, personnel, planning facilities, materials, instruction, and management procedures. Nine credit hours of library communication science required. Offered winter and spring quarters.

Linguistics/LI
399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of linguistics.

471-4 Introduction to Historical and Comparative Linguistics
(Listed jointly with Department of Modern Languages; see FR 471, GER 471, RUS 471, SPN 471.) Principles of historical and comparative study of languages: introduction to Indo-European, Germanic, Romance, and Slavic philology.

Management/MGT
200-3 Elements of Administration and Supervision
Provides students in various disciplines with an understanding of administrative processes and problems while developing practical skills to increase effectiveness in administrative matters. Topics include the role and functions of the administrator, organizational dynamics, leadership, supervision, motivation, decision-making and problem-solving, group dynamics, goals, objectives, integration of interests in organizations, and social issues in administration. For nonbusiness majors.

All courses listed below require junior standing, in addition to the listed prerequisites.

301-3 Principles of Management
General nature and functions of organization and management in society, embodying underlying trends. Prerequisite: ACC 203, EC 202, 203.

302-3 Introduction to Organizational Behavior
Development of an understanding of behavior within a modern organization. Interrelationships of the individual, informal and formal groups. Prerequisite: MGT 301.

303-3 Introduction to Production Systems
Survey of functions making up the production system. Includes product design, process design, production standards, work measurement, design of jobs and work methods, forecasting, scheduling, quality control, and inventory control. Prerequisite: MGT 301, QBA 202.

411-3 Concepts and Techniques of Supervision
Focus on the concepts and techniques of effective supervision as they relate to productivity and achievement of organizational and personal objectives. Prerequisite: MGT 302.

412-3 Management-Union Relations
Analysis of bargaining requirements and methods, agreement development and administration, and trends in collective bargaining. Prerequisite: MGT 302.
415-3 **Labor-Management Relations in Government**
Analytical study of the development of collective bargaining at all levels of government; topical areas include history, present environment, union structure, law, approaches to negotiation, tactics, and trends. Prerequisite: MGT 421 or permission of instructor.

421-3 **The Personnel Function**
Analysis of the human resources system, interrelationship of policy areas such as staffing, development, and utilization. Prerequisite: MGT 302.

422-3 **Compensation Administration**
Analysis of job evaluation, job design, wage and salary administration, and similar topics as related to personnel objectives. Prerequisite: MGT 421.

423-3 **Seminar in Personnel Management**
Research, analysis, and discussion of contemporary issues involving the management of personnel. Prerequisite: MGT 421.

431-3 **Quality Control**
Concepts, objectives, and application of management of quality in production systems. Emphasis on techniques and methods used to control operating processes and incoming and outgoing quality levels. Prerequisite: MGT 303, QBA 202.

432-3 **Production and Inventory Control**
Advanced course in techniques for production and inventory management. Major topics include forecasting, inventory management systems, and material requirements planning (MRP). Prerequisite: MGT 303, QBA 202; or equivalent.

433-3 **Industrial and Institutional Purchasing**
Lectures and case studies relating to materials management. Emphasis on purchasing, receiving, storing, and inventory control; value analysis and specialized problems in institutional procurement. Prerequisite: MGT 301.

434-3 **Special Topics in Management**
Topics as listed below: 434-A, Small Business Consulting; 434-B, Topics in Operations Management; 434-C, Topics in Personnel Administration; 434-D, Topics in Industrial Relations; 434-E, Topics in Systems Management; 434-F, Topics in Organizational Development; 434-G, Contract Negotiation. Prerequisites announced in the quarterly class schedule.

477-1 to 3 **Special Studies in Management**
Reading or research in a selected field of management. Topics vary from quarter to quarter. May be repeated to a maximum of ten credit hours. Senior standing in management and permission of department chair required.

478-3 **Honors: Independent Study in Management**
Research in management for fulfillment of the Honors Program project requirement. Permission of department chair required.

481-4 **Business Policy and Administration**
Integrative course requiring application of all functional areas of business in the analysis and solution of business problems. Strategic management is the core synthesizing concept of study. Students are required to work in teams inside and outside the classroom for simulation gaming and case analyses. Should be taken in the final stage of the undergraduate program in the senior year. Senior standing and admission to the College of Business and Administration required.

482-3 **Public Policy in the Business Environment**
Relationship between business and government; the business environment and public policy, the corporate role in American society, business social responsibility. Senior standing and admission to the College of Business and Administration required.

**Marketing/MKT**

103-3 **Historical Development of Marketing Institutions**
A series of case studies tracing the adaptation and change in particular types of marketing institutions such as supermarkets, chain stores, and department stores. Case histories of particular institutions such as Macy's and Sears, Roebuck and Company are also discussed. In addition, the factors that shaped present day marketing institutions and the changes in society resulting from marketing institutions are examined to assess the adaptive and formation characteristics of marketing institutions.

222-3 **Marketing and Society**
Acquaints nonbusiness students with the concept and practice of marketing in a broad social context. Examines issues of controversy and concern to the student as a consumer/citizen. Topics include advertising and pricing practices, product proliferation, safety and quality, and social responsibility of business. Cannot be applied toward business degree. For nonbusiness majors only.

All courses listed below require junior standing, in addition to the listed prerequisites.

301-3 **Principles of Marketing**
Explores the structure and functioning of the American marketing system; emphasis on its economic and social determinants, cost, productivity, and efficiency. Prerequisite: EC 201, 202, 203; or permission of department chair.
302-3 *Marketing Management*
Factors involved in the management of the marketing function relative to product development, promotion, pricing, physical distribution, and determination of marketing objectives within the framework of the environment. Prerequisite: MKT 301.

303-3 *Consumer Behavior*
The behavior content of marketing in consumer, industrial, and international fields. Examination of applicable theory, research findings, and concepts that are provided by psychology, sociology, anthropology, and marketing. Stress essential models of buyer behavior based upon sources of influence: individual, group, culture, environment. Required of marketing majors. Prerequisite: MKT 302.

336-3 *Fundamentals of Personal Selling*
Nature of personal selling in the marketing environment; special emphasis on personal selling-marketing relationships, buyer motivation and behavior, selling strategy, and techniques of selling. Required of marketing majors. Prerequisite: MKT 302.

401-3 *Sales Management*
Objectives, policies, and techniques of sales force management. Special role of the sales manager in marketing, selling, personnel, and financial responsibilities and opportunities. Prerequisite: MKT 302.

405-3 *Price and Product Management*
Concepts and techniques used in the development of the price and product components of marketing strategy, including opportunity/threat analysis, planning procedures, and the organizational and social frameworks in which the price and product management decisions are made. Prerequisite: MKT 301, 302.

411-3 *Credit Management*
Use of credit as a tool of marketing management. Includes the basic concept of credit, social influences of credit, production of the credit service, agencies and institutions involved in performance of credit functions, and technology of credit management. Prerequisite: MKT 302, FIN 302.

416-3 *Product Management*
An intensive study of the product development and management function in modern organizations with particular emphasis on technique, procedure, concept, and theory applications to real and simulated product management problems. Required of marketing majors. Prerequisite: MKT 301, 302.

418-3 *Price Management*
Critical study and extensive application of existing and developing pricing techniques, procedures, concepts, and theories to simulated and real price management problems. Required of marketing majors. Completion of nine credit hours of accounting and nine credit hours of economics required. Prerequisite: MKT 301, 302.

421-3 *International Marketing*
Analysis of managerial and operational problems of the multinational business organization. Emphasis on the role of environmental differences in influencing marketing strategy. Prerequisite: MKT 302.

431-3 *Physical Distribution*
Overview of logistics as a part of the firm’s marketing program. Analysis of physical facilities, transportation, and alternative channels of distribution. Qualifies as distribution option for marketing majors. Prerequisite: MKT 302.

441-3 *Advertising*
Advertising as a communication tool in marketing management. Emphasis on decision making relative to message strategy, media selection, creativity, budgets, and appraisal of advertising effectiveness. Prerequisite: MKT 302.

451-3 *Marketing Research*
Examination of the marketing research process in both a basic and an applied sense; focus on concepts and techniques currently employed in behavioral research. Required of marketing majors. Prerequisite: MKT 301, 302, 303; QBA 201, 202.

452-3 *Analysis of Markets*
Continuation of MKT 451 with emphasis on the use of marketing analysis in the decision-making process. The use of the scientific approach in relation to product, channel, price and promotional, and other marketing decisions is studied. Prerequisite: MKT 451.

455-3 *Experimentation in Marketing*
Introduces the subject of experimentation in marketing research and consumer decision making. Provides a means of understanding the concepts, techniques, and potential applications of experimentation for marketing decision making. Prerequisite: MKT 451, QBA 430; or permission of instructor.

461-3 *Principles of Retailing*
Analysis of the performance of marketing functions at the retail level. Emphasis on institutional compositions, competitive factors, and management of the marketing mix as it relates to retail market segments. Qualifies as distribution option for marketing majors. Prerequisite: MKT 302.
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471-3 Industrial Marketing
Nature, evolution, and functions of industrial marketing and wholesaling operations; market structure, pricing, promotion, government, economics, and ethical aspects.
Prerequisite: MKT 302.

475-3 Entrepreneurship
How to start your own business. Concepts and techniques of planning to initiate or purchase a company. Students develop a written business plan for a new venture.
Prerequisite: MKT 302, ADM 350, FIN 350.

477-1 to 6 Independent Studies in Marketing
Readings or research in a selected field of marketing. Senior standing and permission of instructor required.

478-3 Honors: Independent Study in Marketing
Research in marketing for fulfillment of the Honors Program project requirement. Permission of department chair required.

480-1 to 3 Special Topics in Marketing
Seminar in special topics such as consumerism and social issues, nonprofit organization marketing, advanced retailing management, channels of distribution, forecasting, and entrepreneurship. Specific topic and prerequisites announced in quarterly class schedule. Channels of distribution topic qualifies as distribution option for marketing majors. Prerequisite varies, depending on topic.

481-1 to 6 Internship in Marketing
One quarter, faculty-supervised internship in retailing, marketing research, advertising, industrial selling, nonprofit sector marketing, or other areas of marketing. Course requires monthly seminars and reports. Permission of director of marketing internship program required. Senior standing or departmental approval required. Prerequisite varies with nature of internship.

492-3 Marketing Policy
Final course to integrate the student's work in marketing and to promote marketing problem-solving capabilities. Course involves group preparation of a marketing plan. Senior standing in the College of Business and Administration and completion of majority of degree course work required. Required of marketing majors.

Mathematics/MTH
The middle digit of the course number indicates the area of mathematics as follows: 1-computer science, 2-business mathematics, 3-analysis, 4-mathematics education, 5-algebra, 7-geometry.

102-3 Elementary Algebra
Programmed beginning algebra. Sets, counting numbers, integers, rational numbers, equations in two variables, polynomials, factoring, fractions, fractional and quadratic equations. At least Level 2 on math placement test and departmental approval required.

127-3 Intermediate Algebra
Real numbers and algebraic expressions, factoring, algebraic functions, graphs of lines, quadratic equations, radicals, principle roots, laws of exponents, rational exponents.
Prerequisite: MTH 102 or equivalent or at least Level 3 on math placement test.

129-3 College Algebra I
Order, absolute value, linear and factored quadratic inequalities, equations and inequalities in two variables, simultaneous solutions, graphs of lines, circles, parabolas and factored polynomials, functions, functional notation, exponential and logarithmic functions, applications.
Prerequisite: MTH 127 or equivalent or at least Level 4 on math placement test.

130-3 College Algebra II
Complex numbers, synthetic division, remainder and factor theorem, fundamental theorem of algebra, depressed equations, sequences and series, matrices, Gauss-Jordan, determinants, Cramer's Rule. May be taken concurrently with MTH 131.
Prerequisite: MTH 129 or equivalent or at least Level 5 on math placement test.

131-3 Trigonometry
Trigonometric and inverse trigonometric functions. May be taken concurrently with MTH 130. Prerequisite: MTH 130 or equivalent or at least Level 6 on math placement test.

132-5 Calculus I
Conic sections, functions, limits, continuity, the derivative, derivatives of algebraic and trigonometric functions, and applications of the derivative. Prerequisite: MTH 130, 131; or equivalent; or Level 7 on math placement test.

133-5 Calculus II

200-3 Refresher Calculus I
For those who want to review calculus. This course and MTH 300 cover the material of MTH 132, 133, 231. Graded pass/unsatisfactory. Knowledge of calculus or permission of instructor required. Usually offered in the evening.
224-3 **Calculus for Administrative, Life, and Social Sciences I**
Functions, rates of change, limits, derivatives of algebraic functions, and applications including maxima and minima. Oriented toward students in the social, managerial, and life sciences. Credit will not be granted to students with credit for MTH 129 or equivalent or at least Level 5 on math placement test.

226-3 **Calculus for Administrative, Life, and Social Sciences II**
Exponential and logarithmic functions, indefinite and definite integrals with applications, partial derivatives and optimization, introduction to elementary linear algebra and set theory. Credit will not be granted to students with credit for MTH 225. Prerequisite: MTH 224.

231-5 **Calculus III**
Applications of the definite integral, polar coordinates, parametric equations. Infinite series, power series, vector algebra in the plane and space. Prerequisite: MTH 133.

232-5 **Calculus IV**
Partial derivatives, definite integrals in the plane and space. Vector functions and their derivatives, motion in space, vector fields, line and surface integrals, Green's theorem, divergence theorem, Stoke's theorem. Prerequisite: MTH 231.

233-5 **Differential Equations**
Elementary first order equations, linear equations, linear systems, series solutions, Laplace transform, applications. Uniqueness and existence theorems for solutions. Prerequisite: MTH 231.

253-3 **Elementary Matrix Algebra**
An elementary course in matrix theory covering matrices, linear equations, determinants, linear transformations, eigenvalues, and eigenvectors. Credit will not be granted to students with credit for MTH 355. Prerequisite: MTH 133 or equivalent.

257-3 **Discrete Mathematics for Computing**
Discrete mathematics useful in computing: elementary logic and set theory, induction, binary relations and trees, asymptotic behavior of functions. Prerequisite: MTH 133, CS 142.

280-3 **Introduction to Mathematical Proof**
Topics selected by the instructor to give students experience in constructing mathematical proofs. Intended for sophomores as preparation for upper-level mathematics courses. Prerequisite: MTH 231.

300-3 **Refresher Calculus II**

304-4 **Mathematics as a Human Activity**
Shows nonscience students some of the applications and uses of mathematics. Enrollment limited to nonscience majors of at least sophomore standing with no math course beyond MTH 130.

306-3 **Mathematical Modeling**
Structure and properties of mathematical models. Size effects, dimensional analysis, graphical methods, comparative statics, stability, optimization techniques, probabilistic models, Monte Carlo simulation. Junior standing and completion of two quarters of calculus required.

316-4, 317-4 **Numerical Methods for Digital Computers**
Introduction to numerical methods used in the sciences. Methods of interpolation, data smoothing, functional approximation, integration, solutions of systems of equations, and solutions of ordinary differential equations. 3 hours lecture, 2 hours lab. Prerequisite: for 316, MTH 231, MTH 253 or 355, CS 142 or 210; for 317, MTH 316.

332-3 **Complex Variables**
Topics discussed include power series expansion, the formula of Cauchy, residues, conformal mappings, and elementary functions in the complex domain. An applied course intended for students in science and engineering. Prerequisite: MTH 231.

333-3 **Partial Differential Equations and Boundary Value Problems**

343-4, 344-4 **Mathematical Foundations I, II**
Sets, relations, functions of the whole number system, place value notation, modular numbers, permutations and combinations, development of the integers and rational numbers, fractional and basimal notations, polynomial and rational functions. Must be taken in sequence. Enrollment limited to elementary education majors.

345-4 **Geometry for Elementary School Teachers**
Axioms, finite geometries, nonmetric and metric lengths, angles, area, volume, polygonal figures, elementary curves. 3 hours lecture, 1 hour lab. Prerequisite: MTH 344.

355-5 **Matrix Algebra**
Matrices, systems of equations, vector spaces, inner products, linear transformations, determinants, eigenvalues, eigenvectors, quadratic forms, and symmetric matrices. Prerequisite: MTH 231.
381-3 Elementary Number Theory
Divisibility properties of integers, prime numbers, congruences, the Chinese remainder theorem, quadratic reciprocity law. Mobius inversion formula, Euler phi-function, other number-theoretic functions. Prerequisite: MTH 231 or junior standing.

399-1 to 5 Selected Topics
Selected topics in mathematics. May be repeated. Permission of instructor required.

407-3 Optimization Techniques
Concepts of minima and maxima. Linear programming, simplex method, sensitivity, and quality. Transportation and assignment problems. Dynamic programming. Prerequisite: MTH 233, MTH 253 or 355.

410-4 Theoretical Foundations of Computing
(Listed jointly with Department of Computer Science; see CS 410.) Considers the various responses to the question of "effective procedure" or "algorithmic method." When does there exist an effective procedure for generating answers to a collection of questions? The following approaches are presented: Turing machines, Markov algorithms, recursive functions, and the methods of Kleene and Post. Other topics include Church's hypothesis, the halting problem and similar decision problems, recursive and recursively enumerable sets. Prerequisite: CS 400 and a 300-level mathematics course; or CS 142 and a 400-level mathematics course.

423-3 to 4 Advanced Logic
(Listed jointly with Department of Philosophy; see PHL 423.) Treats logic as an object rather than a subject. Contains extensions to higher order logic, but mainly emphasizes the use of logic and the limitations of logical systems. Topics vary from quarter to quarter. Prerequisite: PHL 123, 323, or one of these together with one math course beyond calculus, or permission of instructor.

431-3 Real Variables I
Functions, sequences, limits, continuity, differentiability, integration, and mean-value theorems. Senior standing and MTH 280 recommended. Completion of the calculus sequence required.

432-3 Real Variables II
Infinite series, uniform convergence, Taylor series, improper integrals, special functions, and Fourier series. Prerequisite: MTH 431.

433-3 Real Variables III
Theory of functions of several variables, vector-valued functions. Prerequisite: MTH 432.

434-3 Introduction to Complex Analysis I
Complex number, analytic functions, Cauchy-Riemann equations, classical integral theorems. Taylor series, Laurent series, singularities. Prerequisite: MTH 232 or equivalent.

435-3 Introduction to Complex Analysis II
Residues, conformal mappings, Schwarz Christoffel transformations, harmonic functions. Poisson integral formula. Dirichlet problem. Prerequisite: MTH 434.

440-3 History of Mathematics
Development of calculus from antiquity through Newton, Leibnitz, development of classical analysis; the rise of abstraction; set theory, algebra, topology; modern analysis. Prerequisite: MTH 231, 451, 471.

441-3, 442-3 Foundations of Analysis I, II
Elementary logic, sets, whole numbers, modular systems, integers, rationals, complex extensions, real numbers, elementary functions. Prerequisite: for 441, MTH 280 or permission of instructor; for 442, MTH 441.

451-3, 452-3 Introduction to Modern Algebra I, II
Introduction to abstract algebraic structures, including groups, rings, integral domains, and fields. Recommended preparation: MTH 280. Prerequisite: for 451, MTH 231; for 452, MTH 451.

457-3 Combinatorial Theory
Topics are permutations, combinatorics, generating functions, recurrence relations, Polya's theory of counting. Junior standing required. Prerequisite: MTH 231.

458-3 Applied Graph Theory
(Listed jointly with Department of Computer Science; see CS 458.) Introduction to methods, results, and algorithms of graph theory. Emphasis on graphs as mathematical models applicable to organizational and industrial situations. Junior standing required. Prerequisite: MTH 231, CS 142.

471-3 Geometry
Topics in foundations of Euclidean geometry, introduction to non-Euclidean and other geometries. Prerequisite: MTH 231.

472-3 Projective Geometry
Projective and affine planes and spaces; change of coordinates; projective transformations; conics. Prerequisite: MTH 231.

474-3 Calculus on Manifolds
A rapid treatment of those topics in analysis and topology necessary to develop the notions of manifold, Gaussian and Riemannian sectional curvature. Prerequisite: MTH 232 or equivalent.
475-4 Differential Geometry
Calculus on Euclidean space, frame fields, calculus on a surface, shape operators, geometry of surfaces in Euclidean 3 space. Prerequisite: MTH 232.

476-4 Computer Graphics I
(Listed jointly with Computer Engineering; see CEG 476.) Principles of computer graphics: representation of two- and three-dimensional space on a display, data compression; hidden surface problems; computer graphics systems: displays; input; graphic software packages; real time applications. Prerequisite: MTH 253, CS 400, or permission of instructor.

477-4 Computer Graphics II
(Listed jointly with Computer Engineering; see CEG 477.) Continuation of MTH 476. Covers selected topics in detail, including hidden line and surface removal; shading models; curved surface generation, and color models. Students are expected to understand and implement sophisticated algorithms in these areas. Projects are individualized and creative. Selected papers are used for in-depth material. 3 hours lecture, 2 hours lab. Prerequisite: MTH 476.

480-1 Methods of Applied Mathematics: Geometric Methods
The basic mathematical tools for the description of physical systems in three-dimensional space: vector and tensor analysis; matrices, curvilinear coordinate systems. Intended for students in applied fields. Prerequisite: MTH 232, 253 or 355. (Previously listed as MTH 331.)

481-3 Methods of Applied Mathematics: Differential Equations
Solution methods for ordinary differential equations commonly arising in physics and engineering. Systems of equations, linear spaces, eigenvalue problems, Sturm-Liouville theory, orthogonal functions. As time permits, additional topics selected from Bessel and Legendre functions, stability theory, Liapunov's methods, autonomous systems and the Poincare phase plane, existence and uniqueness theorems. Prerequisite: MTH 233, 253 or 355. (Previously listed as MTH 436.)

482-3 Methods of Applied Mathematics: Integral Methods
The use of integral transforms in the solution of differential and integral equations: Fourier series, Fourier and Laplace transforms and inverses, integral equations, Green's functions. Prerequisite: MTH 332 or 435.

488-1 to 5 Independent Reading
Topics vary from quarter to quarter. Permission of instructor required.

492-1 to 5 Undergraduate Seminar
Permission of instructor required.

499-1 to 5 Selected Topics
Selected topics in mathematics. May be repeated. Permission of instructor required.

Medical Technology/MT
Enrollment in all courses listed below is limited to medical technology interns.

434-2 Introduction to Medical Laboratory Science
(Listed jointly with Department of Biological Sciences; see BIO 434.) Introduction to procedures and techniques related to clinical laboratory function. Completion of preprofessional medical technology curriculum required.

435-2 General Laboratory Methods
(Listed jointly with Department of Biological Sciences; see BIO 435.) Specimen collection and operation of basic clinical laboratory instruments. Corequisite: MT 434.

436-5 Diagnostic Microbiology
(Listed jointly with Department of Biological Sciences; see BIO 436.) Application of microbiological principles to diagnosis, infection, and resistance. Completion of preprofessional medical technology curriculum required.

437-5 Methods of Diagnostic Microbiology
(Listed jointly with Department of Biological Sciences; see BIO 437.) Laboratory experiments in diagnostic microbiology. Corequisite: MT 436.

438-5 Clinical Chemistry
(Listed jointly with Department of Biological Sciences; see BIO 438.) Application of principles of biochemistry to the human in health and disease. Completion of preprofessional medical technology curriculum required.

439-5 Clinical Laboratory: Biochemistry
(Listed jointly with Department of Biological Sciences; see BIO 439.) Laboratory course using current clinical chemistry techniques for the analysis of human tissues and fluids. Corequisite: MT 438.

440-2 Renal Function
(Listed jointly with Department of Biological Sciences; see BIO 440.) Anatomy and physiology of the renal system in relation to urine composition in health and disease. Completion of preprofessional medical technology curriculum required.

441-3 Laboratory Study of Renal Function
(Listed jointly with Department of Biological Sciences; see BIO 441.) Laboratory study of cellular and chemical components of urine.
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442-3 Hematology
(Listed jointly with Department of Biological Sciences; see BIO 442.) Study of hematopoiesis, blood cell cytology, and clotting mechanisms of human blood. Completion of preprofessional medical technology curriculum required.

443-5 Hematology Laboratory
(Listed jointly with Department of Biological Sciences; see BIO 443.) Laboratory study of cellular elements of blood and hemostasis. Corequisite: MT 442.

444-3 Immunohematology
(Listed jointly with Department of Biological Sciences; see BIO 444.) Immunology and genetics of human blood groups and types. Completion of preprofessional medical technology curriculum required.

445-3 Immunohematology Laboratory
(Listed jointly with Department of Biological Sciences; see BIO 445.) Study of Immunology as applied to human blood isoantigens and isoantibodies. Corequisite: MT 444.

446-2 Immunology
(Listed jointly with Department of Biological Sciences; see BIO 446.) Study of antigens and antibodies with emphasis on in vivo and in vitro reactions. Completion of preprofessional medical technology curriculum required.

447-3 Laboratory Immunology: Serology
(Listed jointly with Department of Biological Sciences; see BIO 447.) Study of detection and measurement of antigens or antibodies using in vitro systems. Corequisite: MT 446.

448-2 Clinical Pathology Correlation
(Listed jointly with Department of Biological Sciences; see BIO 448.) Correlation of clinical laboratory findings with different human physiological states. Completion of preprofessional medical technology curriculum and departmental approval required.

449-2 Clinical Pathology Seminar
(Listed jointly with Department of Biological Sciences; see BIO 449.) Presentation and discussion of topics in clinical laboratory medicine. Completion of preprofessional medical technology curriculum and departmental approval required.

450-1.5 Pediatric Clinical Laboratory
(Listed jointly with Department of Biological Sciences; see BIO 450.) Study of basic analytical techniques applicable to the examination of pediatric body fluids and tissues. Enrollment limited to students in medical technology clinical year.

Microbiology and Immunology/M&I

220-5 Microbiology of the Human Environment
Biology of viruses, bacteria, fungi, protozoans, and helminths as related to their natural environments and host-parasite interaction. An introductory microbiology course for students in environmental health, nursing, and patient-oriented paramedical health professions. 4 hours lecture, 2 hours lab. Prerequisite: BIO 112 or departmental approval.

426-3, 427-3 Pathogenic Microbiology
Study of microorganisms pathogenic for man and animals; emphasis on mechanisms of microbial pathogenesis and host resistance. Prerequisite: for 426, BIO 202, CHM 216, or departmental approval; for 427, M&I 426, BIO 202 or 402, CHM 216, or departmental approval.

428-3 Principles of Laboratory Medical Microbiology and Immunology

431-3 Basic Virology
Basic introduction to the field of virology: plant, animal, and bacterial viruses. Major emphasis on the intrinsic properties of viruses and their interaction with cells, multiplication, genetics, and tumor induction. Prerequisite: BCH 421, BIO 402, or permission of instructor.

441-5 Immunobiological Techniques
Lectures, laboratory exercises, and demonstrations about physical chemical properties of antigens and antibodies, the mechanisms of their reactions, and the effects of these reactions on parasites and host tissues. The development of humoral and cellular resistance to parasites, tissue grafts, and tumors is discussed on cellular and molecular levels. 3 hours lecture, 4 hours lab. Prerequisite: M&I 426, BIO 402, or permission of instructor.

445-5 Immunobiology
A study of biology of the immune system in terms of current concepts of antibody formation and function. Acquired, delayed, and immediate hypersensitivity are studied with respect to immunological deficiencies, malignancy, tolerance, graft rejection, infection, and acquired resistance. 4 hours lecture, 1 hour recitation. Prerequisite: M&I 426, BIO 402, or permission of instructor.
455-4 Medical Mycology
Study of medically important fungi and their pathogenesis in man and animals. Emphasis on proper isolation and identification procedures. For health sciences majors. 3 hours lecture, 3 hours lab. Prerequisite: M&L 426 or 726.

488-1 to 4 Independent Reading
Junior standing and departmental approval required.

499-1 to 4 Special Problems in Microbiology
A maximum of four credit hours applicable to degree requirements. A minimum 2.2 cumulative grade point average and departmental approval required.

Military Science/MIL

111-1 Leadership I
Introduction to leadership, emphasizing fundamentals and principles of leadership, characteristics of a group, and traits of a leader. Discussion of the ROTC programs and opportunities.

112-1 Leadership II
The mechanical aspects of leadership (management tasks), including planning, organizing, and controlling rewards and punishments. Discussion of the branches and specialties available in the military.

113-1 Leadership III
The mechanical aspects of leadership including counseling, effective listening, and effective communication. Extensive use of case studies in leadership and management.

211-1 Leadership and Tactics
Study of tactical management, written and oral reports, tactics, and customs and courtesies of the service. Squad organization and function.

212-1 Leadership and Tactics
Study of leadership as it applies to the military, introduction to basic military symbols and tactics.

213-1 Map Reading
An introduction to map reading, including identifying terrain features, using grid systems, plotting locations, intersection, resection, and using overlays.

311-2 Advanced Tactics I
Analysis of geography as it pertains to military functions, study of military weapons systems, and intelligence-gathering capabilities. Requires one weekend training exercise in the field and a monthly physical fitness test. Prerequisite: MIL 111, 112, 113, 211, 212, 213, or equivalent.

312-2 Advanced Tactics II
Analysis of the leader’s role in directing and coordinating the efforts of individuals and small units in the execution of offensive and defensive tactical missions. Discussion of the various branches of the army. Requires one weekend training exercise and a monthly physical fitness test. Students travel to Fort Harrison, Indiana for testing. Prerequisite: MIL 311 or permission of instructor.

313-2 Military Instruction
Development of ability to express oneself clearly and accurately with emphasis on analysis of military problems, evaluation of situations, and preparation and delivery of logical solutions. Basic methods of instruction. Prerequisite: MIL 311, 312 or permission of instructor.

411-2 Military History
American military history from emergence of power in 1898 through the present, including effective and ineffective leadership, uses of the principles of war, and social attitudes toward the US military. Prerequisite: MIL 311, 312, 313.

412-2 Advanced Leadership
Study of combat operations and various military teams, to include military geography, current military operations, and coordination and planning necessary between elements of the team. Prerequisite: MIL 411.

413-2 Applied Leadership and Management
Study of the analysis of selected leadership and management problems involved in unit administration and military justice. Obligations and responsibilities of an officer on duty, including the chain of command and officer-enlisted relationships. Prerequisite: MIL 411, 412.

Modern Language Humanities/ML

111-4, 112-4, 113-4, 114-4, 115-4 Modern Languages–Humanities
Study of selected cultures according to language distinctions, with emphasis on their uniqueness within the family of nations. 111: French culture. 112: Germanic culture. 113: Spanish culture. 114: Spanish-American culture. 115: Russian culture.

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399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of modern languages. Topics vary from quarter to quarter.

Motion Pictures/TH

131-4 Film Appreciation
Introduction to film appreciation and analysis; examines critical approaches to film and film style, including authorship and genre.

180-3 Film Production I
Introduction to the basic elements of film production, including scripting, cinematography, editing, and sound. Participation on super-8 film projects from initial conception to final screening.

181-3, 182-3, 183-3 Elementary Film Projects
Production of short film projects under faculty supervision. Review of basic film techniques; introduction to some advanced film production techniques. Includes writing of film treatment and shooting script, and shooting and finishing a complete film. Prerequisite: TH 180.

231-3 History of the Motion Picture I
Historical development of the art of film from nineteenth-century scientific experiments through end of silent era. Examination of technical, social, economic, and cultural factors that have shaped film art.

232-3 History of the Motion Picture II
Historical development of the art of the film from beginning of sound era to the mid-fifties. Consideration of both American and European film and relation of films to socio-cultural conditions.

233-3 History of the Motion Picture III
Historical development of the art of the film from beginning of mid-fifties to the present. The decline of the studio system, major film movements of the sixties, and the rise of independent feature production are considered.

281-3, 282-3, 283-3 Intermediate Film Projects
Production of medium length film projects under faculty supervision. Review of lip sync film production techniques and discussion of special production problems. Includes writing of film treatment and shooting script, and shooting and finishing a medium length film. Prerequisite: for 281, TH 183; for 282, TH 281; for 283, TH 282.

331-3 Studies in Film History
Courses offered under this title provide an intensive study of a selected area of American or European film history. Specific title announced each time course is offered.

332-3 Studies in Film Authorship
Courses offered under this title provide an intensive study of the work of one or more film directors or other creative personnel, such as screenwriters or performers. Specific title announced each time course is offered. Prerequisite: TH 131 or permission of instructor.

333-3 Studies in Film Genre
Courses offered under this title provide an intensive study of a film genre, e.g., the Western, the musical, the gangster film. Specific title announced each time course is offered.

381-3, 382-3, 383-3 Advanced Film Projects
Production of 16mm film projects under faculty supervision, including budgeting, financing, and production. Emphasis on the documentary, business, and industrial film within the free-lance 16mm market. Prerequisite: for 381, TH 283; for 382, TH 381; for 383, TH 382.

385-3 Studies in Film Production
Courses offered under this title provide an intensive study of a selected area of film production. Specific title announced each time course is offered. Permission of instructor required. Prerequisite: TH 180.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of motion pictures.

435-3 Studies in Film Criticism
Intensive examination of a selected area of film criticism. Specific title announced each time course is offered. Permission of instructor required.

499-1 to 4 Independent Study in Film History, Theory, and Criticism
Advanced individual study not available through regular class offering: independent work to culminate in thesis. Senior standing required. Departmental approval of student proposal required in quarter prior to registration. Prerequisite: TH 332, 333.

Music/MUS

Applied Music
Private instruction is offered in the fields of concentration listed below. Subject to the regulations of the college in which the student is registered, each half-hour lesson per week may carry one or two credit hours per quarter at the undergraduate level, depending upon the level of proficiency demonstrated by the student. All
nonmusic majors, as well as music majors, must receive departmental approval before registering in applied music.

100-1, 2, or 4 Piano
110-1, 2, or 4 Voice
120-1, 2, or 4 Clarinet
130-1, 2, or 4 Flute
140-1, 2, or 4 Trumpet
150-1, 2, or 4 Trombone
160-1, 2, or 4 Organ
170-1, 2, or 4 French Horn
180-1, 2, or 4 Violin
190-1, 2, or 4 Viola
200-1, 2, or 4 Cello
210-1, 2, or 4 String Bass
220-1, 2, or 4 Oboe
230-1, 2, or 4 Bassoon
240-1, 2, or 4 Saxophone
250-1, 2, or 4 Baritone Horn
260-1, 2, or 4 Tuba
270-1, 2, or 4 Percussion
280-1, 2, or 4 Harpsichord
290-1, 2, or 4 Classical Guitar
300-1 to 2 Viola da Gamba

420-3 Opera Production and Coaching
For advanced singers in the production of opera, culminating in public performance. Individual coaching for major role assignment. Permission of instructor required.

441-1, 442-1 Pedagogy
Fundamental problems involved in studio teaching. Critical analysis of teaching materials. Observation and practice in private teaching required. Must be taken in sequence. Senior standing in applied music required.

447-3 Piano Pedagogy I
Group instruction for the keyboard with particular emphasis on the electronic piano laboratory. Study is divided into three categories: pre-school, elementary school-age children, and college-level functional piano. Prerequisite: MUS 122, 203, 253 or permission of instructor.

448-3 Piano Pedagogy II
Survey of piano methods and materials for early elementary (ages four through five), elementary (ages six through seven), average (ages eight through nine), and older beginning piano students; discussion of principles and problems of private piano teaching. Prerequisite: MUS 122, 203, 253 or permission of instructor.

449-3 Piano Pedagogy III
Survey of piano methods and materials for early elementary (ages four through five), elementary (ages six through seven), average (ages eight through nine), and older beginning piano students; discussion of principles and problems of private piano teaching. Prerequisite: MUS 122, 203, 253 or permission of instructor.

Ensembles
Wright State staff and students, not majoring in music, may enroll with or without credit. Enrollment open to all students in the university.

105-1 University Chorus
Audition required.

115-1 University Band

125-1 University Jazz Ensemble
Audition required.

135-1 University Orchestra

175-1 University Women's Glee Club

185-1 University Men's Glee Club

195-1 University Chamber Singers
Audition required.

205-1 Chamber Music
Audition required.

235-1 University Brass Choir
Audition required.
Theory of Music

101-3, 102-3, 103-3 Theory of Music
Theoretical study of music including written exercises, form and analysis, and harmony. Required of all music majors, but open to all students of the university. Must be taken in sequence. Corequisite: MUS 151, 152, 153.

116-1 Introduction to the Theory of Music
Remedial course for first-year music majors. Cannot be applied toward music degree. Open to all students in the university.

151-1, 152-1, 153-1 Sight Singing and Dictation
Must be taken in sequence. Corequisite: MUS 101, 102, 103.

201-3, 202-3, 203-3 Music Theory
Continuation of MUS 101, 102, 103. Part-writing, analysis, and harmony on a more advanced level. Must be taken in sequence. Prerequisite: MUS 103, 153. Corequisite: MUS 251, 252, 253.

251-1, 252-1, 253-1 Sight Singing and Dictation
Continuation of MUS 151, 152, 153. Must be taken in sequence. Prerequisite: MUS 103, 153. Corequisite: MUS 201, 202, 203.

301-3 Baroque Counterpoint
Prerequisite: MUS 203, 253.

302-3 Renaissance Counterpoint
Prerequisite: MUS 203, 253.

303-3 Twentieth Century Counterpoint
Prerequisite: MUS 203, 253.

351-1, 352-1, 353-1 Advanced Sight Singing and Dictation
Must be taken in sequence. Prerequisite: MUS 202, 253.

371-3, 372-3, 373-3 Composition
Creative writing in smaller forms for a variety of media. Includes the exploration of various composition styles. Must be taken in sequence. Prerequisite: for 371, MUS 203.

381-3, 382-3, 383-3 Electronic Music Composition
Composition using electronically generated and manipulated sounds. Includes an historical survey of styles and an exploration of tape and synthesizer techniques. Must be taken in sequence. Prerequisite: for 381, MUS 373.

401-3 Form and Analysis
Harmonic and formal analysis: motive, phrase, periods, binary and ternary forms. Prerequisite: MUS 203, 253, 313.

402-3 Form and Analysis
Contrapuntal techniques, rondo, sonata-allegro forms. Prerequisite: MUS 401.

403-3 Form and Analysis
Contrapuntal techniques and analysis of twentieth-century music. Prerequisite: MUS 203, 253, 313.

421-1, 422-2, 423-2 Orchestration
Tone quality and ranges of orchestral instruments; voice qualities and ranges of choral ensembles; written assignments in each area. Must be taken in sequence. Prerequisite: MUS 203, 253.

424-3 History of Music Theory
A survey of music theory from Jean Philippe Rameau to the present. Traces lines of thought which have had significant influence on musical study in the twentieth century. Prerequisite: MUS 203, 313.

425-3 Senior Theory Seminar
In-depth study of selected topics in music theory. Course requires individual faculty-directed projects, culminating in a class presentation and a research paper. Prerequisite: MUS 403.

471-3, 472-3, 473-3 Advanced Composition
Creative writing, encompassing a variety of media and forms. Includes style exploration and the development of a personal style. Must be taken in sequence. Prerequisite: for 471, MUS 373.

Music History and Literature

121-4 Foundations of Analytical Listening
Aural analysis, taught via musical examples from various periods and cultures, including non-Western and popular music.

122-2 Survey of Musical Styles
Principal types of Western music from ca. A.D. 500 to the present. Aural analysis; forms and styles. Prerequisite: MUS 121.

311-4, 312-4, 313-4 History of Music
From ancient and medieval periods through the twentieth century. Must be taken in sequence. Prerequisite: MUS 103, 122, 153.

314-3 Introduction to Research in Music
Methods of scholarly investigation in music history, theory, and education; music bibliography; emphasis on individual projects and reports. Prerequisite: MUS 203, 313.

331-3 Music Literature: Medieval
Historical study of music of the fifth century to ca. 1450. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.

332-3 Music Literature: Renaissance
Historical study of music from ca. 1450 to 1600. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.

333-3 Music Literature: Baroque
Historical study of music from 1600 to 1750. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.
411-3 Music Literature: Classical
Historical study of music from 1730 to 1830. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.

412-3 Music Literature: Nineteenth Century
Historical study of music from 1820 to 1900. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.

413-3 Music Literature: Twentieth Century
Historical study of music from 1900 to the present. Emphasis on analysis, theoretical and stylistic concepts, and performance practice. Prerequisite: MUS 203, 313.

451-3, 452-3, 453-3 Piano Literature
Historical survey of music for piano from origins in clavichord and harpsichord in the Renaissance through the twentieth century. Junior or senior standing with piano as major or concentration, or permission of instructor required.

455-2, 456-2, 457-2 Vocal Literature
Survey of vocal literature from the eighteenth through the twentieth century, emphasizing German lieder, French mélodie, English and American art songs, opera and oratorio. For music majors. Prerequisite: MUS 313.

Music Education
145-1, 146-1, 147-1 Voice Class
Must be taken in sequence.

215-1, 216-1, 217-1 String Instruments
Class instruction. Materials and pedagogy.

223-3 Methods in Music: Marching Bands
Materials, techniques, and administration of marching bands in the public schools. Sophomore standing and permission of instructor required.

224-1, 225-1 Brass Instruments
Class instruction. Materials and pedagogy.

226-1 Percussion Instruments
Class instruction. Materials and pedagogy.

227-1, 228-1, 229-1 Woodwind Instruments
Class instruction. Materials and pedagogy.

322-3 Music in the Senior High School
Choral and ensemble literature. Materials, techniques, curriculum. Prerequisite: MUS 203, 253.

323-3 Methods in Music: School Bands and Ensembles
Administration, techniques, materials, problems: class instruction in public schools. Prerequisite: MUS 203, 253.

324-3 Methods in Music: School Orchestras and Ensembles
Administration; techniques; problems, class instruction in public schools. Prerequisite: MUS 203.

328-4 Music in the Elementary School
Materials, techniques, organization, and administration of vocal and general music programs in the public school. Reading components and teaching strategies included. Prerequisite: MUS 203, 253.

329-3 Music in the Junior High School
Materials, techniques, general music program, curriculum, changing voice. Reading components and teaching strategies included. Prerequisite: MUS 203, 253.

335-3 Conducting (Choral and Instrumental)
Basic baton technique for choral and instrumental conducting. Choral score and instrumental score reading. Two quarters of laboratory ensemble required. Prerequisite: MUS 122, 203, 253.

337-4 Advanced Choral Conducting
Continuation of MUS 335. Emphasis on rehearsal techniques, comprehensive musicianship, and performance practices. For music majors. Choral laboratory ensemble required. Prerequisite: MUS 335.

338-4 Advanced Instrumental Conducting
Continuation of MUS 335. Emphasis on rehearsal techniques, comprehensive musicianship, and performance practices. For music majors. Instrumental laboratory ensemble required. Prerequisite: MUS 335.

435-4 Introduction to Music Education for the Special Learner
Materials, techniques, curriculum for teaching music to the special learner in public/private school music programs. Prerequisite: MUS 122, 203, 253, or 365 and permission of instructor.

436-3 Seminar in Music Education for the Special Learner
Planning, implementing, and evaluating music-teaching techniques with special learners. Participation experiences with groups of special learners. Prerequisite: MUS 365, permission of instructor; or MUS 435 (MUS 435 may be taken concurrently).

437-3 Practicum in Music Education for the Special Learner
A supervised teaching experience with special learners. Emphasis is on sequential musical activities that meet each student's needs. Prerequisite: MUS 365, permission of instructor; or MUS 436 (MUS 436 may be taken concurrently).
Music for Nonmajors

111-4 Music Listening I
Historical survey of Western art music from the Middle Ages through the Baroque period (1750).

112-4 Music Listening II
Historical survey of Classical and Romantic period music (1750-1900).

113-4 Music Listening III
Historical survey of Western art music of the twentieth century.

114-4 Fundamentals of Music Theory
Study of basic materials, notation, and reading of music for students with little or no previous music training.

117-4 Music Listening IV: Jazz
Historical survey of jazz and related styles from the late nineteenth century to the present.

141-2, 142-2, 143-2 Singing in Musical Theatre
Basic music, interpretation of notation. Vocal training with emphasis on musical theatre. Must be taken in sequence. For theatre majors only.

165-3 Fundamentals of Music for the Classroom Teacher
Functional music emphasizing keyboard, recorder, and sight-singing. Enrollment limited to elementary education majors.

365-4 Music in the First Six Grades
Methods and materials for teaching elementary general music. Enrollment limited to elementary education majors. Prerequisite: MUS 165.

Special Studies in Music

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of music.

480-1 to 4 Workshops in Music
Study of selected special topics or problems in music, or special areas of music teaching. Titles announced for each workshop. Senior standing in music required.

481-1 to 6 Advanced Studies in Special Subjects
Directed research, open to properly qualified upperclass and special students. Permission of department chair required.

Nursing/NUR
All of the following courses require admission to the School of Nursing. Course levels must be taken in sequence.

114-2 Nursing Elective
Special topics. May be repeated.

205-3 The Health Care System: Its Impact on Professional Nursing
Introductory course oriented toward the role and function of the professional nurse within the health care system, as influenced by social forces. (Previously listed as NUR 111.)

211-4 Scientific and Nursing Concepts and Theories
Concepts and theories from the arts, sciences, and nursing are discussed in terms of their significance to the practice of professional nursing. The integration and synthesis of various theories, as well as an orientation to the program's philosophy and conceptual framework, are included. Prerequisite: ANT 201, 202; BIO 112; CHM 101, 102; ENG 111, 112; M&L 220; PHS 218, 219; PSY 111, 112; SOC 111, 112. Prerequisite or corequisite: NUR 205.

304-3 Foundations of Nursing Research
Designed to introduce the junior-level nursing major to the basic elements of the research process, including aspects of statistics. Emphasis on the relation of research findings to professional nursing practice and the nursing process. Prerequisite: NUR 211. Prerequisite or corequisite: NUR 311.

308-5 Introduction to Professional Nursing
Introductory course oriented toward the role and function of the professional nurse. Emphasis is on concepts and theories within the sciences, humanities, and nursing which relates to the practice of professional nursing. For registered nurses only. Admission to the registered nurse/Bachelor of Science in Nursing degree program completion track required.

309-6 Nursing Process: Optimum Health
Clinical nursing course. Focuses on the ability of individual and families to adapt to their environment in relation to their optimum state of health. Nursing process is the foundation of the course. For registered nurses only. Prerequisite: NUR 308, BCH 340, SOC 360.

310-4 Nursing Process: Impaired Health
Nonclinical nursing course. A conceptual approach to understanding man's reaction to impaired health throughout the lifespan. For registered nurses only. Prerequisite: NUR 309.

311-9, 312-9, 313-9 Nursing Process: Human Existence and Health I, II, III
Clinical nursing courses. Focusing on the nursing process and man's ability to adapt to his environment in relation to his optimum state of health. Learning experiences include a variety of settings within and outside the health care system. Prerequisite: NUR 211.
317-2 to 4 Selected Topics
Special topics. May be repeated. Junior standing or permission of instructor required.

411-10, 412-10, 413-10 Nursing Process: Human Existence and Health IV, V, VI
Clinical nursing courses oriented toward man's health potential and the practice of professional nursing. Social forces which affect the health care system are discussed in relation to their impact on professional nursing. Learning experiences emphasize independent practice and interdisciplinary activities in any environment where there is a client or patient. Prerequisite: NUR 313.

414-3 Nursing Elective
Special topics. May be repeated. Senior standing required. Prerequisite: NUR 313.

415-3 Independent Study
May be taken for letter grade or pass/unsatisfactory. Prerequisite: NUR 313.

498-3 Nursing Honors Seminar
Provides an opportunity for students to discuss selected problems, issues and special topics related to nursing which are not covered in depth during the usual four-year curriculum. Students must identify an area of interest and develop a project proposal for in-depth study. Participation in Honors Colloquium required. Prerequisite: NUR 304, 312. Offered spring quarter only.

499-2 to 3 Nursing Honors Independent Study
Provides an opportunity for the development and completion of an honors project, using appropriate theories and concepts from the humanities, sciences, and nursing. With the guidance of a faculty member, the student focuses on an area of individual study. Participation in Honors Colloquium required. Prerequisite: NUR 498. Not offered spring quarter.

Office Administration/OA

201-3 Beginning Shorthand
Development of a vocabulary/writing skill in Gregg Diamond Jubilee series shorthand. Permission of adviser required for students with shorthand skills.

202-3 Intermediate Shorthand
Continued vocabulary and writing skill development in Gregg Diamond Jubilee series shorthand. Emphasis on dictation and ability to transcribe accurately. Prerequisite: OA 201 or equivalent proficiency; OA 211 or equivalent.

203-3 Advanced Shorthand
Emphasis on dictation and speed building in Gregg Diamond Jubilee series shorthand. Introduction to transcription. Permission of adviser required. Prerequisite: OA 202 or equivalent proficiency.

211-3 Beginning Typewriting
A mastery of the basic skills in touch typewriting. Typing of letters, reports, short tabulations, themes, manuscripts, and office memoranda. Open to any student with less than one year of high school typewriting instruction, or equivalent. Prebusiness and office education majors with previous typewriting instruction may, with adviser's permission, take a proficiency examination.

212-3 Intermediate Typewriting
Development of speed and accuracy. Introduction to production typewriting of letters, reports, tabulations, and manuscripts. Two hours lab per week required. Prerequisite: OA 211.

213-3 Advanced Typewriting
Further development of speed and accuracy with emphasis on business letters, tabulation problems, business reports, and manuscripts. Introduction to typewritten transcription from office dictation equipment. Two hours lab per week required. Prerequisite: OA 212.

301-3 Beginning Transcription
Introduction to typewritten transcription from dictation. Prerequisite: OA 203, 212.

305-3 Office Machines
An introduction to adding machines, rotary, listing, and electronic calculators, and their application to business problems. Teaching methods are also included. Enrollment limited to students in business education and office administration.

411-4 Office Management and Administration
Modern offices and their operating problems including human relations, principles and procedures of records management. Integrated and simulated exercises are implemented. Junior or senior standing in business and office education required.

Philosophy/PHL

111-4, 112-4, 113-4 Introduction to Philosophy
Classical and contemporary philosophy. 111: origin, structure, methods, certainty, and validity of knowledge. 112: metaphysical problems, including relationship between mind and body, freedom and determinism, and the nature of reality. 113: the nature of moral value and obligation. No sequence requirement.
115-4 Inductive Logic
Introduction to the techniques of inductive and probabilistic reasoning with special emphasis on the problems encountered in attempting to justify those techniques.

123-4 Deductive Logic
Introduction to the techniques of deductive logic, including truth-table analysis, the propositional calculus, and predicate logic.

124-4 Social Ethics and Values
Investigation of fundamental ethical issues in our society. Includes such issues as power, law, race, war, population, ecology, violence vs. pacifism, and punishment vs. rehabilitation.

280-4 Philosophy of Religion: Faith and Reason
(Listed jointly with Department of Religion; see REL 280.) Selected cross-disciplinary issues arising from philosophy and religion: Judeo-Christian concept of God, grounds for belief and disbelief, revelation and faith, religious language, verification, immortality and resurrection, karma and reincarnation. Issues are discussed on the basis of selected texts on faith and reason.

301-4, 302-4, 303-4 History of Philosophy
301: pre-Socratic philosophers, Plato and Aristotle, epicureanism, stoicism, skepticism, neoplatonism, and early medieval philosophy.
302: medieval and Renaissance philosophy, Descartes, Spinoza, and Leibniz.
303: Locke, Berkeley, Hume, Kant, Hegel, Schopenhauer, Nietzsche, logical positivism, process philosophy, and existentialism. No sequence requirement.

305-4 American Philosophy
Survey of American philosophy from Jonathan Edwards to John Dewey, including transcendentalsim (Emerson, Thoreau), idealism (Royce), pragmatism (Peirce, James), and naturalism (Santayana, Dewey).

308-4 Survey of Analytical Philosophy
Major developments in last hundred years from Frege and early views of Moore and Russell, through logical atomism (Russell, Wittgenstein) and logical positivism (Shlick, Carnap, Ayer), to more recent views of such figures as Wittgenstein and Quine. Prerequisite: PHL 111, 112; or 123; or permission of instructor.

311-4 Ethics

312-4 Moral Problems
Investigation and discussion of moral issues as they arise within major areas of society. Emphasis on studies in such areas as medicine, law, family, business, and politics. May be repeated.

322-4 Philosophical Logic
Concepts which border the philosophy of language, philosophy of mind, and ontology. Sample topics: predication and universals; naming, meaning, and necessity; negation, existence, and truth; logical and semantic paradoxes. Prerequisite: PHL 123 or permission of instructor.

323-4 Symbolic Logic
Standard notations, principles of inference, formal systems, methods of proof. Focus on first-order predicate logic. Completion of three credit hours of deductive logic or permission of instructor required.

331-4 Political Philosophy
Analysis of classical and contemporary writings in political philosophy; includes such topics as power, sovereignty, the state, and anarchy; equality, justice, law, and liberty; consent, representation, will of the people; political rights and responsibilities.

332-4 Studies in Political Philosophy
Course of variable content dealing with topics in ancient and modern political philosophy. May be repeated.

341-4 Aesthetics
Study of theories concerning the nature of the work of art, aesthetic experience, the arts, and beauty.

349-4 Asian Religious Philosophy
Perennial themes in Asian cultures (such as individual, society, and cosmos; appearance and reality; time and history; karma, freedom, and responsibility) as they have been treated in the philosophical traditions of these cultures.

351-4 Great Scientists and Recent Philosophy: Darwin, Marx, Freud, Einstein
Examination of philosophical importance of the theories of evolution, psychoanalysis, dialectical materialism, and space-time relativity.

371-4 Business Ethics
Case study and discussion of ethical issues involved in business transactions and management.

378-4 Ethics and Medicine
(Listed jointly with Department of Religion; see REL 378.) Examination of ethical issues confronting society in the areas of medicine and health care, from the perspective of philosophical and theological ethics. Examples include ethics of abortion, euthanasia, experimental medicine, and behavior control.
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**381-4 Philosophy of Religion: Contemporary Western Survey**
(Listed jointly with Department of Religion; see REL 381.) Cross-disciplinary perspective on philosophical and religious schools of thought in the early twentieth century. Absolute and personal idealism, spirit, value, positivism and naturalism, history and culture, modernism and pragmatism, religious consciousness and phenomenology.

**382-4 Philosophy of Religion: Process**
(Listed jointly with Department of Religion; see REL 382.) Realism and the revolt against idealism. Cross-disciplinary analysis of a major contemporary philosopher and the implications of his thought for religion. Focus on Alfred North Whitehead.

**383-4 Philosophy of Religion: Secular**
(Listed jointly with Department of Religion; see REL 383.) Cross-disciplinary analysis of modes of human awareness through which religious meaning is expressed (sensation, morality, beauty, reason, human relations). Examination of presuppositions of contemporary secular religion in existentialism.

**394-4 Existentialism**
(Listed jointly with Department of Religion; see REL 394.) Representative writers of the existentialist movement.

**424-4 Mathematical Philosophy**
Investigation of philosophical theories concerning the nature of mathematics, the ground of mathematical knowledge, the necessity of mathematical truth, the empirical relevance of mathematics, and the relationships between mathematical philosophy and general philosophy. Prerequisite: PHL 123 or permission of instructor.

**425-4 Philosophy of Language**
Discussion of basic topics and issues. The limits of meaningful discourse. Aspects of meaning—literal, metaphorical, conversational; contemporary theories of meaning.

**426-4 Philosophy of Literature**
Examination of theories concerning the subject matter, function, nature, and goals of literature.

**465-4 Advanced Analysis**
Investigation of certain problems and attempted solutions that have occupied major contemporary Anglo-American philosophers such as Moore, Russell, Wittgenstein, Carnap, Ryle, Austin, Strawson, and Quine. Prerequisite: PHL 111, 112; or 123; or permission of instructor.

**467-4 Philosophy of Mind**
Classical and contemporary approaches to such issues as the nature of mind, relationships of mind to body, knowledge or other minds, intentionality, perception, and agency. Prerequisite: PHL 111 or 112; or permission of instructor.

**471-4 Philosophy of Physical Science**
Analysis of views concerning scientific explanation, the logic of theory testing, and the ontological status of theoretical entities; philosophical examination of the concepts of "space," "time," "matter," and "motion" from classical physics to contemporary relativity. Prerequisite: PHL 115 or permission of instructor.

**472-4 Philosophy of Social Science**
Analysis of views concerning concept and theory formation in the social sciences, problems in objectivity and value, justification of Verstehen, mechanism vs. teleological explanations, and reductionism. Prerequisite: PHL 115 or permission of instructor.

**481-3 to 4, 482-3 to 4, 483-3 to 4 Independent Reading**
Faculty-directed readings in philosophic literature. A written proposal which has departmental approval is required prior to enrollment.

**495-4 Metaphysics**
Investigation of classical and contemporary attempts to develop a theory of the nature of being and reality. Prerequisite: PHL 111 or 112; or permission of instructor.
496-4 Epistemology
Origin, certainty, and extent of human knowledge. Prerequisite: PHL 111 or 112; or permission of instructor.

Physics/PHY

101-1.5, 102-1.5, 103-1.5 Principles of Physics Laboratory
Introductory-level laboratory problems. Corequisite: for 101, PHY 111; for 102, PHY 112; for 103, PHY 113.

111-3, 112-3, 113-3 Principles of Physics
Introduction to fundamental phenomena, principles, and laws of physics. Prerequisite: MTH 102 or equivalent. Corequisite: for 111, PHY 101; for 112, PHY 102; for 113, PHY 103.

121-3 From Apples to Spaceships
Evolution of science and scientific world view studies by tracing development of mechanics and energy concepts from Galileo and Newton through Einstein. Application to space travel, relativity, and other topics of current interest. Laboratory is listed as PHY 131.

122-3 The Nuclear Atom
Microscopic structure of matter, from the atomistic theory applied to gases and crystals to the underlying structure. Topics include electricity—atomic glue, quantum theory and atoms, the nucleus and nuclear energy, and fundamental particles. Laboratory is listed as PHY 132.

123-3 Suns, Moons, and Planets
Introduction to astronomy with emphasis on the solar system. Topics include the earth-moon system, other planets and their satellites, space exploration, and theories for the origin of the solar system. Laboratory is listed as PHY 133.

124-3 Lights, Colors, and Sounds
Wave motion is studied, with orientation toward examples of light and sound, such as musical sounds, noise, and colors occurring in nature. Laboratory is listed as PHY 134.

125-3 Stars, Galaxies, and the Universe
Introduction to astronomy with emphasis on the universe of stars and galaxies. Topics include stellar evolution, galaxies, origin and evolution of the universe, astrophysics. Laboratory is listed as PHY 135.

131-1 Apples to Spaceships Laboratory
Experiments designed to illustrate the methods of scientific investigation. Lab component of PHY 121 for students wishing to use course to meet General Education science requirements.

132-1 The Nuclear Atom Laboratory
Experiments stress the relationship of everyday phenomena to basic physical principles. Lab component of PHY 122 for students wishing to use course to meet General Education science requirements.

133-1 Suns, Moons, and Planets Laboratory
Astronomical observations and experiments. Lab component of PHY 123 for students wishing to use course to meet General Education science requirements.

134-1 Lights, Colors, and Sounds Laboratory
Experiments to illustrate the physical aspects of what we see and hear. Lab component of PHY 124 for students wishing to use course to meet General Education science requirements.

135-1 Stars, Galaxies, and the Universe Laboratory
Astronomical observations, laboratory experiments, and a visit to the planetarium. Lab component of PHY 125 for students wishing to use course to meet General Education science requirements.

150-1.5, 151-1.5, 152-1.5 Contemporary Concepts in Physics
Modern physics; emphasis on recent developments. Topics range from astrophysics to molecular and nuclear physics. Graded pass/unsatisfactory.

200-1 General Physics Laboratory

201-1 General Physics Laboratory

202-1 General Physics Laboratory

210-2 General Physics
Selected topics in mechanics; introduces use of calculus in interpretation of physical phenomena. Prerequisite: PHY 112, 113; MTH 133.

211-2 General Physics
Selected topics in electricity and magnetism; introduces use of calculus in interpretation of physical phenomena. Prerequisite: PHY 112, 113; MTH 133.

After successfully completing PHY 111, 112, 113, and PHY 210 and 211, students may take courses for which PHY 240, 241, 242 are prerequisite.

214-3 Energy Production: Alternative Solutions
Basic energy concepts and physical processes by which natural resources are converted to useful energy. Physical principles will be introduced as needed. Recommended preparation: ENV 211. Prerequisite: MTH 102 or equivalent.
240-4 General Physics
   Introductory survey of mechanics for science
   and engineering students. Introduces the use
   of calculus in interpreting physical
   phenomena. Topics include vectors,
   kinematics, dynamics, energy, momentum,
   rotation, and statics. 3 hours lecture, 1 hour
   recitation. Corequisite: PHY 200, MTH 132.

241-4 General Physics
   Introductory survey of thermodynamics,
   oscillations and waves, sound, fluids, and
   gravity. Uses calculus in interpreting physical
   phenomena. 3 hours lecture, 1 hour recitation.
   Prerequisite: PHY 240, MTH 132. Corequisite:
   PHY 201, MTH 133.

242-4 General Physics
   Introductory survey of electricity and
   magnetism. Uses calculus in interpreting
   physical phenomena. Topics include electric
   field and potential, currents, D.C. circuits,
   magnetic fields, and Faraday's Law. 3 hours
   lecture, 1 hour recitation. Prerequisite:

260-4 Introduction to Modern Physics
   Elementary introduction to phenomenology
   and theoretical concepts of modern physics.
   Special theory of relativity and quantum theory.
   Atomic and molecular structure and spectra.
   X-rays and solid state physics. Nuclear
   structure, reactions, natural radioactivity.
   Instrumentation for nuclear physics research.
   One hour is devoted to demonstrations and
   recitations. Prerequisite: PHY 210 or 211, or
   242; MTH 133.

270-4, 271-4, 272-4, 273-4 General Physics
   Same as PHY 240, 241, 242. Open primarily to
   evening students. Laboratory is included in
   this course and requires no separate
   registration. Prerequisite: for 270, MTH 132; for
   271, 272, 273, MTH 133.

280-3 Introduction to Photography
   Develops an understanding of optical and
   photographic processes, and the techniques
   necessary to control this medium for a wide
   range of uses of photography. 1 hour lecture,
   4 hours lab. Graded pass/unsatisfactory.

300-3, 301-3 Introduction to the Physics of Solids
   Selected concepts in quantum physics.
   Crystal structure, x-ray diffraction,
   imperfections, metallic solutions and
   compounds, mechanical properties. Electronic
   structure of solids: metals, semiconductors,
   insulators. Applications: semiconductor
   devices, metal alloys, dielectrics, magnets, superconductivity. Recommended
   preparation: PHY 260. Prerequisite: for 300,
   PHY 242, CHM 121, MTH 233, or permission of
   instructor; for 301, PHY 300.

314-2 to 3 Intermediate Physics Laboratory
   Intermediate-level laboratory problems.
   Acquaints students with wide variety of
   experimental techniques in many areas of
   classical and modern physics. May be
   repeated. Prerequisite or corequisite: PHY 260
   or permission of instructor.

315-3 Physics Instrumentation Laboratory I
   Physics laboratory experiments with an
   emphasis on electrical measurements and
   electronic instruments. Lectures on circuit
   theory, experiment design, and electronic
   instruments. 1.5 hours lecture, 3 hours lab.
   Prerequisite or corequisite: PHY 260 or
   permission of instructor.

316-3 Physics Instrumentation Laboratory II
   Experiments emphasizing electronic
   instruments applied to areas such as
   mechanics, atomic physics, and nuclear
   physics. Lectures on applications of integrated
   circuits to experimentation, data analysis, and
   data presentation. 1.5 hours lecture, 3 hours
   lab. Prerequisite: PHY 315.

322-4 Applied Optics
   Study of optical instruments by means of both
   geometrical and physical optics. Theory and
   application of interferometry and light
   detection devices. Brief introduction to lasers
   and holography. 3 hours lecture, 2 hours lab.
   Recommended preparation: PHY 260.
   Prerequisite: PHY 243 or equivalent; MTH 253.

332-3 Lasers
   Introduction to the physics of lasers including
   emission and absorption processes in lasing,
   the factors controlling laser gain, the
   properties of optical resonators, and a survey
   of salient features for principal types of lasers.
   Prerequisite: PHY 243, 260, or CHM 121; or
   permission of instructor.

371-3, 372-3 Analytical Mechanics
   Intermediate problems in statics, kinematics,
   and dynamics; equilibrium of forces, rectilinear
   motion, curvilinear motion, central forces,
   constrained motion, energy and moments of
   inertia, the Lagrange method. Prerequisite:
   PHY 210, 211, or 242. Corequisite: MTH 233.

400-3 Introduction to Solid Earth Geophysics
   (Listed jointly with Department of Geological
   Sciences; see GL 400.) The basics of seismic,
Courses/Physics

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gravimetric, magnetic, and heat conduction principles as used to determine the geophysical properties of the solid earth. Emphasis is on the deeper parts of the crust, the mantle, and the core. Junior standing required. Prerequisite: MTH 132.

420-3 Thermal Physics I
First and second laws of thermodynamics: general thermodynamic formulas with applications to matter. Prerequisite: PHY 210 and 211, or 242; MTH 233.

421-3 Thermal Physics II

422-5 Introduction to Geophysical Prospecting
(Listed jointly with Department of Geological Sciences; see GL 422.) Introduction to principles of gravity, magnetic, seismic, electrical, and radioactivity prospecting. 4 hours lecture, 2 hours lab. Junior standing or permission of instructor required. Prerequisite: MTH 132.

423-4 Seismic Exploration
(Listed jointly with Department of Geological Sciences; see GL 423.) Study of the theory, observation, and analysis of seismic phenomena as applied to geologic exploration. 4 hours lecture, 2 hours lab. Prerequisite: PHY 422, MTH 231; or permission of instructor.

424-4 Gravity Exploration
(Listed jointly with Department of Geological Sciences; see GL 424.) Study of the theory, observation, and analysis of gravitational phenomena as applied to geologic exploration. 3 hours lecture, 2 hours lab. Prerequisite: PHY 422 or permission of instructor.

425-4 Topical Concepts in Geophysics
(Listed jointly with Department of Geological Sciences; see GL 425.) Special topics in geophysics. 3 hours lecture, 2 hours lab. Prerequisite: PHY 400 or 422; or permission of instructor.

426-1 Geophysics Seminar
(Listed jointly with Department of Geological Sciences; see GL 426.) Literature survey and student presentations on selected topics in geophysics. May be repeated. Prerequisite: PHY 422 or 400.

430-2 to 4 Electronics
Basic theory and application of transistors and integrated circuits in present-day circuitry as found in research instrumentation. Prerequisite: PHY 242 or equivalent.

437-4 Seismic Data Processing
Digital filtering, deconvolution, and migration of seismic data. Prerequisite: PHY 423.

442-4 Physical Optics
Interaction of light and matter, interpretation of these phenomena using the electromagnetic wave theory of radiation. Topics include emission, absorption, scattering, polarization, interference, diffraction, coherence, and holography. Prerequisite: PHY 452, MTH 333.

450-3, 451-3, 452-3 to 4 Electricity and Magnetism
Fundamental laws of electricity and magnetism from viewpoint of fields. Maxwell’s equations, transient and steady state currents, electric and magnetic properties of matter, electromagnetic radiation. Prerequisite: PHY 242, or 210 and 211; MTH 232, 233.

460-4 Introduction to Quantum Mechanics
Mathematical structure of quantum mechanics. Applications to selected one- and three-dimensional problems with emphasis on atomic structure. Prerequisite: PHY 260, 372; MTH 333.

461-4 Introduction to Solid State Physics
Selected properties of solids and their quantitative explanation in terms of simple physical models. Applications of quantum mechanics to solids. 3 hours lecture, 2 hours lab. Prerequisite: PHY 316, 460.

462-4 Introduction to Nuclear Physics and Relativity
Special theory of relativity. Nuclear radiation, nuclear properties, nuclear transformations and elementary particles and interactions. Prerequisite: PHY 460.

470-3 Selected Topics
Selected topics in physics. May be repeated. Departmental approval required. Prerequisite: PHY 372.

480-3, 481-3, 482-3 Introduction to Theoretical Physics
Introduction to classical theoretical physics. Emphasis on mechanics, electromagnetic field theory, mathematical techniques. Departmental approval required. Prerequisite: PHY 372, 452; MTH 333.

488-1 to 3 Independent Reading
May be repeated. Departmental approval required. Prerequisite: PHY 240, 241, 242, or equivalent.

494-3 Senior Projects
Selected problems in experimental and theoretical physics with critical analysis of results. May be repeated. Senior standing in physics and departmental approval required.
499-3 Special Honors Research Problems
Special research in a recognized branch of
physics, usually related to research carried on
by the department. Critical analysis of results
required. May be repeated. Senior standing in
physics, enrollment in the physics honors
program, and departmental approval required.

Physiology/PHS

Core Courses
218-5 Human Physiology I
First half of a basic course in human
physiology. Subject areas include
homeostasis; cell, nerve, and muscle function;
nervous system regulation and integration;
cardiovascular and circulatory function.
4 hours lecture, 2 hours lab. Prerequisite:
ANT 201, 202; CHM 121; MTH 102.

219-5 Human Physiology II
Second half of a basic course in human
physiology. Subject areas include metabolism,
gastrointestinal, pulmonary, renal, and
reproductive function; acid-base regulation;
endocrine regulation, and integrative
mechanisms. 4 hours lecture, 2 hours lab.
Prerequisite: PHS 218 or permission of
instructor.

403-4 Physiology of Disease
Inadequate or inappropriate physiological
responses and their consequences are
presented. Emphasis is on applications of
physiological principles. Prerequisite:
PHS 218, 219; BCH 250; M&I 220.

Additional Courses
488-1 Independent Reading in Physiology
This course enables qualified students to
begin independent reading in the
physiological literature. A written report is
required for each registered period. May be
repeated to a maximum of three credit hours.
Junior standing and departmental approval
required.

499-1 to 4 Special Problems in Physiology
A specialized program which gives seniors an
opportunity to explore potential careers in
physiology. Studies may vary from working
with instructor on an ongoing physiological
research project to analysis of data obtained
from completed research project. May be
repeated to a maximum of four credit hours.
Senior standing and permission of instructor
required. One student per instructor.

Polish/POL

111-4 Essentials of Polish
Introduction to Polish with an emphasis on
speaking the language.

Political Science/PLS

110-4 Political Issues
Selected current domestic and international
political issues; background information,
analysis of importance; presentation of major
alternative viewpoints; present stage of
governmental action and policy on each issue;
identification of information sources pertaining
to each issue.

112-4, 113-4 American Politics and Government
112: the Constitution, public opinion, parties,
elections, interest groups. 113: Congress,
presidency, courts, bureaucracy. May be
taken out of sequence.

122-4, 123-4 International Politics
122: basic factors influencing contemporary
international interaction; techniques and
patterns of international behavior.
123: intensive study of selected issues and
trends, e.g., multipolarity, disarmament, peace
keeping.

Advanced Courses
201-4 The Study of Politics
Introduction to the study of political
relationships, structures, processes and
systems; key issues in the content and method
of political studies. Required of political
science majors. Open to nonmajors.

204-4 Modern Political Ideologies
Systematic analysis of the major political
ideologies of the twentieth century, with
particular attention to democracy, fascism,
communism, and nationalism.

210-4 Introduction to Quantitative Methods of
Political Science
Uses of quantitative political data with
emphasis on contemporary research
applications. Survey design and questionnaire
construction. Analysis and interpretation
of data. Prerequisite: MTH 102 or equivalent
level on math placement test or permission of
instructor.

225-4 City Politics
Governments and politics of metropolitan
regions; government structure and functions;
interest and power relations.

226-4 State Government
Survey and analysis of the structures and
functions of the American states, with special
attention to the problems of federal-state and
state-local relations, legislative apportionment,
and urban growth.
230 Courses/Political Science

231-4 Political Parties
General functions, organization, and operation of American political parties. Special emphasis on role of parties in democratic systems. Nominations, elections, campaigns, presidential politics.

240-4 Law and Society
Theories of law; the nature and functions of the judicial process.

251-4 Western European Politics
Comparative study of the political systems of Great Britain, France, and West Germany.

271-4 Current World Problems
Various views and perspectives on selected contemporary problems and trends in international politics.

276-4 Peace Studies
The study of war and peace and current efforts in dealing with international conflict. Examines the roots of war in American society and alternative strategies for elimination of war as an instrument of policy.

284-4 Africa and the Modern World
International relations of African states south of the Sahara. Emphasis on inter-African state relations and African state relations with the rest of the world, especially the major powers.

305-4 Comparative Marxist Theory
Critical examination of the chief theories developed by Marx, Engels, Lenin, Stalin, Mao Tse-tung, Castro, and various revisionists. Emphasis on Soviet and Chinese ideologies.

306-4 The Marxist-Christian Dialogue
(Listed jointly with Department of Religion; see REL 306.) Examination and evaluation of the Marxist-Christian dialogue. Emphasis on such categories as hope, liberation, alienation, man, love, class struggle, transcendence, power, and change. Junior or senior standing or permission of instructor required.

310-4 Empirical Political Analysis
Scope and methods of empirical political research; concepts and hypotheses; explanation and prediction; methodological approaches to the study of politics and political behavior. Prerequisite: PLS 210; or introductory course in statistics; or permission of instructor.

326-4 Government of Ohio
Organization and functions of the government of Ohio, with special attention to development, social structure, legal status, electoral processes, and fiscal problems.

328-4 Political Aspects of Urban Development
Institutional and political context of planning; laws, governmental structures, and procedures; urban politics.

335-4 The American Presidency
General political functions, roles, and structure of the presidential office. Limits and opportunities of presidential power; relations with Congress, courts, bureaucracy, the public, and the political party; presidential personality. Recommended preparation: PLS 112, 113.

337-4 The Legislative Process

339-4 United States Health Policy
Critical review of important political, social, and economic causes and consequences of health policies in the United States.

340-4 Constitutional Law
Cases in which provisions of the Constitution have been judicially interpreted; federal systems; separation of powers; limits on government.

341-4 Civil Liberties
Cases and related materials on the Bill of Rights and the Fourteenth Amendment; emphasis on the First Amendment freedoms.

342-4 The American Criminal Justice System
Survey of the American criminal justice system, concentrating on political aspects. Police, judges, attorneys, Supreme Court decisions, crime, and public opinion.

345-4 Public Administration
Nature and scope of public administration; administrative law; public interest in the administrative process.

346-4 Public Personnel Administration
Methods of employment, training, compensation, and employee relations in various levels of civil service; organizations of public employees.

347-4 American Public Policy Analysis

352-4 Ethnic Politics
Comparison of ethnic identity and politics in western societies, including the United States, Canada, Great Britain, and France. Topics include minorities and the welfare state, affirmative discrimination, and black politics in the United States.
Governments of Eastern Europe
Introduction to the governments and politics of Eastern Europe, particularly since World War II. Includes current developments in Poland, Czechoslovakia, East Germany, Hungary, Rumania, Bulgaria, and Yugoslavia.

Politics and Society in France
Examines the historic interaction of French culture and politics. Topics include the growth of the French nation and state, French society, the nature of modern politics and institutions, and France's role in world affairs.

Politics of the Developing Nations
Comparative analysis of various problems, particularly political, confronting developing nations in nation building and development.

Politics of the Middle East
Introduction to governments and politics of the Middle East with special attention to cultural and historical background and the Arab-Israeli conflict.

Politics of the Developing Nations
Comparative analysis of various problems, particularly political, confronting developing nations in nation building and development.

Politics of the Middle East
Introduction to governments and politics of the Middle East with special attention to cultural and historical background and the Arab-Israeli conflict.

Classical and Medieval Political Thought
Critical examination of political ideas from 500 B.C. to A.D. 1500 with special attention to Plato, Aristotle, Cicero, St. Augustine, St. Thomas Aquinas, Luther, Calvin, and Machiavelli.

Political Thought: Hobbes to Mill
Critical examination of political ideas from 1600 to 1900, with special attention to Hobbes, Locke, Rousseau, Montesquieu, Hume, Burke, Hegel, Bentham, Marx, and Mill.

Twentieth Century Political Thought
Critical examination of twentieth century political theory. Emphasis on nature, methodology, evaluation, existing condition, and future of political thought.

Seminar in Political Theory
Readings, research, reports, and discussion on selected theorists, topics, and problems. Topics vary from quarter to quarter. Junior or senior standing or permission of instructor required.

Seminar in Methodology
Techniques and methods of research in political science; application to individual projects and research designs. Prerequisite: PLS 310 or equivalent level of familiarity with statistical techniques.

Topics in Empirical Political Analysis
Selected topics of methodological or analytical concern in contemporary political research. May be repeated once. Prerequisite: PLS 310 or permission of instructor.

Seminar in Metropolitan Studies
Intensive interdisciplinary treatment of metropolitan studies. Reading and discussion on pertinent theory, methodology, and case studies. Practical research by students. May be repeated once. Permission of instructor required.

Urban Policy Analysis
Study of selected urban problems and their relationship to the political environment. Use of simulation gaming to understand community development processes.

Urban Communications Theory
(Listed jointly with Department of Communication; see COM 429.) Processes and institutions by which individuals and groups communicate in urban environment. Model of an urban communication system developed by interdisciplinary systems approach.

Seminar in American Politics and Government
Selected topics related to American political institutions and processes. Emphasis on readings, discussion, research. May be
repeated once. Completion of twelve credit hours in American government and permission of instructor required.

433-4 **Public Opinion**
Opinion formation in American politics; relationship of opinion to public policy; voting behavior in American elections; role of mass media and political interest groups in policy process; development of political attitudes and values.

434-4 **Political Socialization**
Political attitude development. Acquisition of basic political orientations and values from childhood through adolescence and adulthood. Investigation of role of various socializing agents. Junior standing required.

433-4 **Administrative Law Procedure**
A study of the law controlling the process by which policy is made and administered by public agencies. Topics include policy formulation and budgeting, legislative delegation, administrative agencies, rule making, and adjudication. Junior standing required. Prerequisite: PLS 340, 345; or permission of instructor.

445-4 **Comparative Public Administration**
Emphasis on characteristics and roles of public bureaucracies in Western, non-Western, developing, and developed nations.

446-4 **Public Budgeting**
Examination of the major phases of the governmental budget cycle; types of budget; budgetary reform; economic and public policy impact of government budgeting; decision-making process; legislative/executive relations in budget formation and implementation.

447-4 **Seminar in Public Administration**
Selected national, state, and local problems; emphasis on legal scope of administrative power and on research methods used by staff agencies. Topics vary from quarter to quarter. Prerequisite: PLS 345 or permission of instructor.

449-4 **Public Organization Theory**
Theory of administration and decision making of public organizations, principal schools of thought, and impact of structure, behavior, and public policy. Prerequisite: PLS 345.

451-4 **Comparative Government Policy**
Examination of the differences in policy outcomes in relation to variations in governmental structure and political processes in West European political systems and the US; policy areas examined include social welfare, taxation, civil rights, foreign policy.

453-4 **Political System of the Soviet Union**
Analysis of the Soviet system with emphasis on development of the Communist Party.

460-4 **Seminar on Comparative Political Systems**
Readings, research, reports, and discussion on selected topics and problems. Topics vary from quarter to quarter. Permission of instructor required.

470-4 **Seminar in International Relations**
Readings, research, reports, and discussion on selected topics and problems. Permission of instructor required.

471-4 **International Law**
Study of rules governing the conduct of international politics with emphasis on their relevance to current world problems.

486-4 **Chinese Foreign Policy**
Examination of policy dynamics and structures as well as external policies and international relations of the People's Republic of China.

490-1 to 4 **Independent Reading**
Supervised individual readings on selected topics. Arranged between student and faculty member directing the study. May be taken twice. Cannot be applied toward forty-eight credit hour departmental unit minimum. Junior or senior standing and permission of instructor required.

491-1 to 4 **Independent Research**
Supervised individual research on selected topics. Arranged between student and faculty member directing the study. May be taken twice. Cannot be applied toward forty-eight credit hour departmental unit minimum. Junior or senior standing and permission of instructor required.

492-1 to 4 **Independent Field Experience**
Supervised individual projects. May involve intern programs in local government or other special programs. May be taken twice. Cannot be applied toward forty-eight credit hour departmental unit minimum. Junior or senior standing and permission of instructor required.

493-1 to 4 **Contemporary Problems**
Advanced study in selected topics which frequently include new developments in the methodology or subject matter of the various subfields of the discipline. May be repeated for credit.

494-1 to 4 **Special Topics**
Study of particular political problems of contemporary significance. May not follow time patterns scheduled for regular courses. May be repeated for credit. Cannot be applied toward forty-eight credit hour departmental unit minimum.

**Portuguese/POR**

111-4 **Essentials of Portuguese**
Introduction to Portuguese with an emphasis on speaking the language.
Psychology/PSY

111-4 Introductory Psychology
Introduction to basic concepts in the study of behavior; emphasis on methods of psychology: physiological considerations, motivation, sensation and perception, learning and cognition.

112-4 Introductory Psychology
Introduction to basic concepts in the study of behavior; emphasis on statistics, psychological tests, development, personality, abnormal behavior, social psychology, and applied psychology.

200-2 to 4 Psychological Study of Contemporary Problems
Restricted psychological problem areas and their implications for modern society and modern intellectual thought. Topics vary. May be repeated. Prerequisite: PSY 111, 112.

201-4 Divorce: Current Perspectives
Survey of theory, current research, and methodological issues relating to the divorce process, the effects of divorce on children, and professional intervention. Prerequisite: PSY 111, 112.

202-4 The Psychology of Nonverbal Communication
Introduction to the perception of nonverbal sources of information and the impact on physical and cognitive behaviors. Prerequisite: PSY 111, 112.

Advanced Courses
PSY 111 and 112 are the minimum prerequisite for all advanced courses (300 and above).

303-4 Psychology of Health Behavior
Survey of the contributions of psychology of health care. The focus is both theoretical and practical, emphasizing the integration of physiological and psychological knowledge.

304-4 Industrial and Organizational Psychology
Scientific psychological principles, procedures, and methods applied to human behavior in organizations.

305-4 Abnormal Psychology
Overview of facts and theories pertaining to abnormal behavior. Topics include classification and diagnosis, causes and treatment of abnormal behavior.

306-4 Engineering Psychology
(Listed jointly with Department of Engineering; see EGR 306.) Introduction to the study of human factors in the design and operation of machine systems.

307-4 Tests and Measurements
Introduction to the construction and use of attitude scales, aptitude and ability tests in organizational settings with special emphasis on the utilization of standard tests.

308-4 Environmental Psychology
Effects on behavior of environmental factors such as crowding, noise, pollution, temperature, lighting, and architecture. Applications of psychological knowledge and techniques in dealing with current environmental problems are also considered.

309-4 Behavior Modification
Basic survey of the principles of conditioning as they relate to problems in human adjustment. The general principles of the psychology of learning are emphasized but they are illustrated with cases of interest to a wide variety of helping professionals; e.g., psychologists, educators, social workers, nurses, and speech therapists.

310-4 Psychology of Women and Men
Examines the current state of research evidence about sex differences in all aspects of human behavior, as well as patterns of public attitudes about the natures and proper roles of men and women.

315-5 Research Design and Methods
Introduction to the design and execution of behavioral studies, including laboratory experiments and field observations. Laboratory exercises will give students practice dealing with problems and data from a representative sample of areas within psychology. 3 hours lecture, 4 hours lab. Prerequisite: PSY 111, 112; STT 265.

321-4 Cognition and Learning
Survey of cognitive processes, with emphasis on learning and memory systems. Topics include short-term memory, retrieval mechanisms, conceptual structures, and cognitive skill tests (e.g., IQ tests), mnemonic techniques, and amnesias.

323-4 Cognition and Learning Methods
Laboratory research in various areas of cognitive psychology. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 321.

331-4 Psychology of Personality
Review of contemporary theories of personality and associated research methodology.

333-4 Personality Research Methods
Laboratory experience in research techniques related to experimental personality. Problems of design with students expected to develop and implement a research proposal. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 331.

341-4 Developmental Psychology
Survey of theory, research, and methodological issues in the study of development across the lifespan.
234 Courses/Psychology

343-4 Developmental Psychology Methods
Survey of research design appropriate to developmental analysis, innovations in developmental methodology, and laboratory experience in the selection, design, and analysis of developmental problems of specific interest to the individual student. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 341.

351-4 Social Psychology
Survey of current theories and experimental findings regarding the determinants of social behavior.

353-4 Social Psychology Methods
Laboratory course in methods and problems involved in research in social psychology. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315.

361-4 Conditioning and Learning
Introduction to experimental findings and contemporary theories of conditioning, learning, and motivation.

363-4 Conditioning and Learning Methods
Problems and methods of research in conditioning, learning, and motivation. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 361.

371-4 Perception
A study of the active processes by which organisms gather, interpret, and respond to environmental stimuli.

373-4 Perception Methods
Laboratory experience and research techniques in various areas of perception. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 371.

391-4 Physiological Psychology
Physiological mechanisms of behavior. Special emphasis on motivational systems and learning. Prerequisite: PSY 111, 112 (no prerequisite for biology majors).

392-4 Advanced Physiological Psychology
Physiological mechanisms of behavior. Special emphasis on motor and sensory systems. Prerequisite: PSY 391.

393-4 Physiological Psychology Methods
Laboratory exercises in neuropsychology. 2 hours lecture, 4 hours lab. Prerequisite: PSY 315, 392.

408-4 Advanced Environmental Psychology
Theories and research relating to the effects of environmental factors on social behaviors. Prerequisite: PSY 351.

415-4 Advanced Research Design and Quantitative Analysis
Use of factorial designs and multivariate tests in psychological research. Prerequisite: PSY 315.

416-4 Advanced Experimental Design: Canned Computer Programs
Focus is on the use of canned computer programs such as SPSS, SAS, and BIOMED in the design, analysis, and interpretation of behaviorally-oriented research. Prerequisite: PSY 315, 415.

421-4 Advanced Topics in Cognition and Learning
Detailed examination of selected areas in cognition and learning. Prerequisite: PSY 321.

429-4 Interpersonal Relations Skills
Surveys the scientific literature on conformity, obedience, interpersonal choice, and verbal and nonverbal communication. Relates this information to enhancing everyday communication and interaction, and introduces techniques for developing basic interpersonal skills.

431-4 Advanced Topics in Personality
Review of selected topics in personality. Selected personality constructs and their measurement (e.g., need for achievement, self concept), as well as situational determinants of behavior. Prerequisite: PSY 331.

432-4 Practicum in Applied Psychology
Work under supervision in an applied psychological setting consistent with individual student's interests; e.g., mental health agency, industrial, or organizational setting. Advanced standing in psychology and permission of instructor required.

433-4 Psychology of Exceptional Development
Survey of theoretical approaches to the description and explanation of childhood psychopathology, overview of current research in the area of childhood psychopathology, and description of methodological problems involved in clinical research with children. Permission of instructor required. Prerequisite: PSY 341 or equivalent.

435-4 Advanced Topics in Abnormal Psychology
Theories and research relating to causes, symptoms, and influences of abnormal behavior. Permission of instructor required. Prerequisite: PSY 305.

437-4 Behavior Modification
Applications of empirically-derived psychological principles to the modification of a wide variety of human behaviors. Major but not exclusive emphasis on theories of learning. Children's behavior in classroom and at home, application to behavior of adults in institutions, clinics, and everyday activities. Permission of instructor required. Prerequisite: PSY 305, 361.
439-4 Theory and Research in Clinical Psychology
Overview of contemporary clinical approaches, research techniques, and empirical data. Permission of instructor required. Prerequisite: PSY 331, 435; or advanced standing.

441-4 Advanced Topics in Developmental Psychology
Development of learning and cognition in children covered in depth. Prerequisite: PSY 341.

443-4 Psychometrics
Emphasis on measurement theory and its applications, including concepts of reliability, validity, discrimination, and prediction. Permission of instructor required. Prerequisite: PSY 331 or advanced standing.

444-4 Advanced Industrial Psychology
Theories and research findings in selected topics in industrial psychology. Permission of instructor required. Advanced standing required.

447-4 Psychology of Aging
Overview of the theoretical, methodological, and conceptual issues in the study of human aging. Focus is on both current research and applied relevance. Junior standing required. Prerequisite: PSY 111, 112, 341.

449-4 Theory and Research in Hypnosis
Presentation of hypnosis as a subject of research and theory. Coverage of history, myths, legal and ethical aspects; relation to psychopathology and to normal personality traits; applications in psychology, medicine, and dentistry; and potentials and limitations in regard to self-control and self-improvement. Permission of instructor required. PSY 331 or advanced standing.

450-4 Biofeedback: Research and Application
An introduction to biofeedback in the context of general behavior theory of learning. Literature is surveyed. Topics include problems of methodology and experimental design and application to problems in clinical psychology. Recommended preparation: PSY 391. Prerequisite: PSY 361.

451-4 Advanced Topics in Social Psychology
Detailed examination of selected areas of current research in social psychology. Prerequisite: PSY 351.

455-4 Psycholinguistics
An overview of language, its development during the first years of life, its biological basis, its normal and abnormal characteristics. Advanced standing or permission of instructor required.

461-4 Advanced Topics in Conditioning and Learning
Continued study of conditioning, learning, and motivation. Prerequisite: PSY 361.

465-4 Information Processing
Study of information processing skills such as selective attention, pattern recognition, reading, problem-solving, and human performance. Prerequisite: PSY 321.

471-4 Advanced Topics in Perception
Advanced topics in perception; special emphasis on modern controversial issues and theories. Prerequisite: PSY 371.

478-4 Animal Behavior
(Listed jointly with Department of Biological Sciences; see BIO 478.) Physiology, phylogeny, and ontogeny of behavior. Prerequisite: BIO 111, 112, 113, 302; or PSY 111, 112; or permission of instructor.

481-4 History of Psychology
Major trends in the development of psychology from its beginnings to the modern period. Advanced standing or permission of instructor required.

482-4 Theories and Systems in Psychology
Comprehensive treatment of the historical antecedents for selected theories and systems in psychology. Junior or senior standing required.

488-1 to 4 Seminar in Special Topics
Course of variable content. Specific topics announced each time course is offered. Advanced standing in psychology or a related field and permission of instructor required.

489-2 Honors Seminar
Course of variable content; primarily derived from current honors thesis research. Literature surveys, experimental designs, and special analytical problems presented and discussed by students and faculty. May be repeated once. Acceptance into psychology honors program required.

490-1 to 4 Independent Readings
Specific topics selected by student and instructor. Graded pass/unsatisfactory. Advanced standing and permission of instructor required.

491-4 Advanced Topics in Physiological Psychology
Detailed examination of selected areas in physiological psychology. Prerequisite: PSY 391.

498-1 to 4 Independent Research
Original problems for investigation. Permission of instructor required.
Courses/Psychology

499-1 to 4 Honors Research Project
Original problems for investigation leading to a psychology department honors thesis. Each honors student must complete a minimum of three credit hours of PSY 499 (nine credit hours maximum). Topics vary from quarter to quarter. Acceptance into psychology honors program and permission of honors adviser required.

Quantitative Business Analysis/QBA

201-3 Introduction to Statistical Analysis
Statistical methods used in analysis of business problems. Theory and application of frequency distributions; measures of location; variation and further descriptions. Introduction to probability; expectations; theoretical probability distributions; sampling and sampling distributions. Prerequisite: MTH 129.

202-3 Introduction to Statistical Inference
Emphasizes setting standards as aids in decision making. Techniques covered include inferences concerning means, standard deviations, proportions, analysis of variance, nonparametric tests, linear regression, and correlation. Systematic presentation of price and quality indexes, seasonal trend and cycle analysis. Prerequisite: QBA 201.

Advanced Courses

All courses listed below require junior standing, in addition to the listed prerequisites.

303-3, 304-3 Introduction to Operations Research I, II
Introduces mathematical methods of modern quantitative analysis. Topics include linear programming, queuing theory, simulation, and decision theory. Prerequisite: for 303, MTH 226; for 304, QBA 201, MTH 226.

320-3 Information Systems Design
Use of stored programs and systems analysis techniques to support decision making in the areas of accounting, finance, marketing, economics, and management. Prerequisite: AIS 300.

321-3 Management Operating Systems
Instructional experience provided through analysis and design of management operating systems. To complement and integrate classroom instruction, course includes visits to local firms currently utilizing management operating systems. Prerequisite: QBA 320.

430-3 Quantitative Methods for Business Decisions I
Simple random sampling, stratified random sampling, simple cluster sampling, and multistaged cluster sampling discussed as to theory, procedure, and business application. Experimental designs for orderly collection of data for use with the F ratio in the test of hypotheses explored. Linear bivariate and multivariate regression and correlation analyses described with associate models and computer applications. Prerequisite: QBA 202.

431-3 Quantitative Methods for Business Decisions II
Topics include discriminant analysis, factor analysis, time series analysis, statistical quality control, nonparametric statistics, canonical analysis. Emphasis on application of statistical analysis to business problems. Prerequisite: QBA 202.

440-3 Deterministic Models of Operations Research
Designed to strengthen student's ability to formulate problems in mathematical terms and to solve resulting model using analytic techniques. Classical optimization and advanced applications of linear, integer, and dynamic programming are discussed. Prerequisite: QBA 303.

441-3 Probabilistic Models in Operations Research
Designed to strengthen student's ability to formulate problems in probabilistic terms and to solve resulting model using analytic techniques. Topics include simulation, Markov processes, and queuing theory. Prerequisite: QBA 202, 304.

452-3 Systems Simulation in Business and Economics
Introduction to simulation techniques as applied to business and economic systems. Topics include basic concepts, applications, and technical problems associated with use of systems simulation. Design and operation of computer models emphasized. Prerequisite: CS 142.

477-1 to 4 Special Studies in Management Science
Topics vary from quarter to quarter. Permission of instructor required.

478-3 Honors: Independent Study in Management Science
Research in management science for fulfillment of the Honors Program project requirement. Permission of department chair required.

481-6 Internship in Management Science
One quarter faculty-supervised internship in management science. The student will work in a firm or public agency, participate in seminars, and submit reports for completion of the course. Approval of Management Science Committee required.
Entails the investigation of an existing quantitative business problem in a firm or organization in the Dayton metropolitan area. The seminar participants, working in groups of three or four, are expected to initiate a research proposal, perform a field research investigation, and present findings orally and in writing to management. Enrollment limited to seniors in management science or permission of instructor required.

Rehabilitation/RHB

201-4 Introduction to Rehabilitation
A general introduction to the philosophy, history, and development of rehabilitation. The course familiarizes students with areas to be considered when providing services to persons with physical/mental disabilities. National and local organizational structures are also considered. Students are to obtain an understanding of various appeal procedures and code of ethics.

202-4 Rehabilitation Resources
Designed to prepare students to locate, evaluate, and utilize local, state, and federal resources which are available to meet the needs of the disabled and disadvantaged. Students also receive information about obtaining funds to establish programs and organizations via proposal writing. Graded pass/unsatisfactory. Prerequisite: RHB 201.

203-4 Pre-Practicum Field Experience
Provides an early experience working with physically/mentally disabled persons in a structural setting. Determining their suitability to work with specific groups. Requires ten clock hours per week in agency. Seminar permits students to explore rehabilitation practicum and professional characteristics which facilitate rehabilitation. Students are supervised by university and agency supervisors. Prerequisite: RHB 201, 202.

213-3 Introductory Field Experience in Rehabilitation Services
Seventy-five clock hours of supervised field experience intended to acquaint the community/rehabilitation services student with career options, with the structure and administrative procedures of various human services agencies, and with the application of client-intake procedures. Applications must be made one quarter prior to planned placement. Enrollment limited to community/rehabilitation services majors in good academic standing. Prerequisite: RHB 201.

214-3 Rehabilitation Services Interviewing
Classroom introduction to the role of the rehabilitation services aide in the client-intake process, and to how this process occurs within the organizational structure of human services agencies. Prerequisite: RHB 201.

223-3 Advanced Field Experience in Rehabilitation Services
Seventy-five clock hours of supervised field experience intended to provide the community/rehabilitation services student with in-depth knowledge of the structure and processes of a selected agency, of the job description duties of the rehabilitation services aide within this agency, and of the social, special, personal, and vocational needs and problems of the target client population. Application must be made one quarter prior to planned placement. Enrollment limited to community/rehabilitation services majors in good academic standing. Prerequisite: RHB 201.

301-4 Medical Aspects of Rehabilitation I
Introduction to medical terminology and system disorders that usually have continued and long-standing residual effects and commonly require rehabilitation intervention. Consideration of the social and vocational adjustments that must be made by individuals with disabilities. Prerequisite: RHB 201.

302-3 Medical Aspects of Rehabilitation II
Examination of the treatment and rehabilitation of those physical disabilities that impose chronic limitations on activity. Consideration of the social and vocational adjustments that must be made by the individual. Prerequisite: RHB 301.

303-4 Occupational Information for the Physically Disabled
Overview of vocational theories, job-seeking skills, various vocational evaluation systems, occupational information, and other techniques which facilitate employment of clients with physical disabilities. Attention is given to job analysis, job placement, and other techniques. Consideration of attitudinal and architectural barriers which clients may encounter. Prerequisite: RHB 201, 301, 302.

304-4 Rehabilitation Casework
Assists the student in acquiring interviewing, case recording, writing rehabilitation plans with appropriate justifications, and case management skills. Junior standing required. Prerequisite: RHB 201, 202, 301.
Courses/Rehabilitation

370-1 to 3 Independent Study/Minor Problems in Rehabilitation
Independent study in areas of interest to the student but not readily available in any existing course. Topics vary from quarter to quarter. Junior standing required.

401-4 Functional Disorders
Introduction to techniques used to rehabilitate clients who are disabled by psychiatric, neurotic, character trait disorders, chemical dependency or mental deficiency. Consideration is given to the uniqueness of problems encountered by the clients as they return to society. Prerequisite: RHB 201, 301, PSY 305.

402-4 Behavioral Assessment in Rehabilitation
Assists the student in developing knowledge and skill essential to the interpretation and use of diagnostic information. Work evaluation reports, general aptitude test batteries and psychological test reports are examined. Prerequisite: RHB 201, 202, 301, PSY 307.

403-4 to 12 Rehabilitation Practicum
An integrative experience for the rehabilitation education student which requires 300 clock hours of field work supervised by the faculty and the agency. The requirement may be completed in one quarter (twelve credit hours) or over three quarters (four credit hours per quarter). Graded pass/unsatisfactory. Application must be made one quarter prior to planned placement assignment. Minimum 2.25 grade point average required. Prerequisite: RHB 201, 202, 301, 303, 304, 401, 402.

404-4 Rehabilitation Seminar
Problems and programs of special interest in rehabilitation. For advanced rehabilitation education majors. Prerequisite: RHB 201, 301, 303.

405-3 Rehabilitation of the Deaf I
Introduction to social, vocational, and adjustment problems of the deaf. Manual communication technique for professionals preparing to work in rehabilitation or other programs for the deaf. Off-campus field experience required.

406-3 Rehabilitation of the Deaf II
Further review of the social, vocational, and adjustment problems of the deaf. Continuation of developing manual communication techniques for professionals preparing to work in rehabilitation or other programs for the deaf. Off-campus field experience required. Prerequisite: RHB 405.

407-4 Principles of Rehabilitation Counseling
Focuses on the development of the basic skills and attitudes associated with rehabilitation counseling. Interview style and format are examined along with listening and responding techniques associated with the holistic approaches. Prerequisite: RHB 201, 202, 301, 304.

408-4 Community Aspects of Deafness
Introduction to the social, cultural, and linguistic history of the deaf community in the United States. Off-campus field experience required. Prerequisite: RHB 201, 202, 301, 405, 406.

409-4 Intermediate Sign Language
Designed to improve the student's skill in American sign language. Consideration is given to signed English and procedures required to obtain interpreters for the deaf. Prerequisite: RHB 201, 202, 301, 405, 406, 407.

410-2 Counseling Aspects of Deafness
Provides an overview of factors which should be considered when assisting hearing impaired persons to resolve personal adjustment problems. Prerequisite: RHB 301, 405.

411-4 Physical Disability and Human Behavior
Designed to familiarize students with the interaction of physical disabilities and human behavior. Appropriate group approaches are reviewed. Prerequisite: RHB 301, 407, CNL 461.

470-1 to 3 Special Topics
Special workshop courses to meet the needs of inservice rehabilitation professionals as well as providing courses on a one-time basis to meet special interests. May be taken for letter grade or pass/unsatisfactory. Junior standing required.

Religion/REL

111-4 Eastern Religions
General introduction to the major religious traditions of South Asia and East Asia; Hinduism, Buddhism, Confucianism, Taoism, and Shinto.

112-4 Western Religions
General introduction to the major religious traditions of Judaism, Christianity, Islam, and other selected religious traditions.

113-4 Contemporary Issues in Religion
Study of selected problems, ideas, and religious developments that have become important in contemporary society.

114-4 What is Religion?
Explores the question of the meaning of religion by looking at various ways in which people experience and express it. Diverse examples of religion and religious life are considered. (Previously listed as REL 110.)
200-4 Literature and Religion of Ancient Israel
(Old Testament)
Introduction to the literature, history, and religion of ancient Israel.

201-4 Post-Biblical Judaism
Introduction to the literature and religion in Jewish sects from the Exile (ca. 500 B.C.E.) to the Mishnah of Judah the Prince (200 C.E.), including the Dead Sea Scrolls. Offered alternate years.

202-4 Literature and Religion of the New Testament
Introduction to the literature, history, and religion of early Christianity.

203-4 Biblical Studies
Investigation and discussion of specific areas in Biblical studies: for example, Hebrew prophets, Jesus in the Gospels, Paul's letters, or a Biblical book or theme. May be repeated with different titles.

210-4 Religion and the American Experience
Survey of different religions in the United States with attention to the growth of a distinctive form of religion shaped by the American experience.

230-4 Introductory American Religion Studies
Introduction to specific segments of American religious life. Focuses on one or more distinctive religious groups or movements in the context of American history and culture. May be repeated with different titles.

2399-4 Space and Faith: Topics in Religion and Geography
(Taught jointly with Department of Geography; see GEO 303.) The interrelation of religious and geographical factors in selected cultures of East and South Asia. May be repeated with different titles.

300-3 Technology and Society
(Taught jointly with Department of Engineering; see EGR 300.) Important developments in engineering and technology: their interrelations with society and human values as viewed in historical and in contemporary perspective. Open to all juniors and seniors.

301-4 Religion and Sexuality
Analysis of the relation of religion to sexuality and related ethical issues.
240 Courses/Religion

318-4 Contemporary Jewish Thought
Examination of the major themes and issues in the works of contemporary Jewish thinkers, e.g., Borowitz, Herberg, Fackenheim, Kaplan, Rothschild, Heschel, Rubenstein, and Weisel.

320-4 Religion and Ethics in the Arts
Analysis of the religious and ethical dimensions, themes, and problems presented in selected contemporary art forms, e.g., architecture, cinema, drama, literature, music, painting, and sculpture. May be repeated with different titles.

325-4 Understanding Death
Basic issues in death and dying, using resources from human sciences and humanities in religious perspective.

330-4 Topics in American Religion
Examination of selected topics in American religion to investigate its basic religious structures and to explore the relationship of religious phenomena to their cultural context. May be repeated with different titles.

340-4 Topics in Asian Religion
Studies in the religious dimension of Asian cultures, with attention to historical, social, and aesthetic perspectives. May be repeated with different titles.

341-4 Islam
Study of the origin and development of Islam, including contemporary issues and problems. Offered on an irregular schedule.

349-4 Asian Religious Philosophy
(Listed jointly with Department of Philosophy; see PHL 349.) Perennial themes in Asian cultures (such as individual, society, and cosmos; appearance and reality; time and history; karma, freedom, and responsibility) as these have been treated in the philosophical traditions of these cultures.

360-3 Anthropology of Religion
(Listed jointly with Department of Sociology and Anthropology; see ANT 346.) Anthropological approach to the meaning and function of religion in social life and the nature of the thought or belief systems that gave rise to different forms of religious life; emphasis on primitive and peasant societies.

361-4 Sociology of Religion
(Listed jointly with Department of Sociology and Anthropology; see SOC 361.) General treatment of religion, examining the influence of religious ideas and institutions on other social institutions and influence of society upon religion. Introductory courses in religion or sociology required.

362-4 Classical Psychologies of Religion
An introduction to the theories of some individuals who have made lasting contributions to the development of the psychology of religion. Individuals chosen to offer contrasting positions.

363-4 Religion and Psychology
An introduction to selected themes, issues, and problems in the interaction of religion and psychology. Differing points of view are considered. May be repeated with different titles.

370-4 Studies in Ethics
A special topics course for intensified study of the ethical dimensions of a particular religious tradition or for concentrated study in theoretical or practical ethical problems. Topics announced with each offering. May be repeated with different titles.

378-4 Ethics and Medicine
(Listed jointly with Department of Philosophy; see PHL 378.) Examination of ethical issues confronting society in areas of medicine and health care, from perspective of philosophical and theological ethics. Examples include ethics of abortion, euthanasia, experimental medicine, and behavior control.

381-4 Philosophy of Religion: Contemporary Western Survey
(Listed jointly with Department of Philosophy; see PHL 381.) Cross-disciplinary perspective on philosophical and religious schools of thought in the early twentieth century. Absolute and personal idealism, spirit, value, positivism and naturalism, history and culture, modernism and pragmatism, religious consciousness and phenomenology.

382-4 Philosophy of Religion: Process
(Listed jointly with Department of Philosophy; see PHL 382.) Realism and the revolt against idealism. Cross-disciplinary analysis of a major contemporary philosopher and the implications of his thought for religion. Focus on Alfred North Whitehead.

383-4 Philosophy of Religion: Secular
(Listed jointly with Department of Philosophy; see PHL 383.) Cross-disciplinary analysis of modes of human awareness through which religious meaning is expressed (sensation, morality, beauty, reason, human relations). Examination of presuppositions of contemporary secular religion in existentialism.

394-4 Existentialism
(Listed jointly with Department of Philosophy; see PHL 394.) Representative writers of the existentialist movement. Junior standing or permission of instructor required.
399-4 Studies in Selected Subjects
Courses of variable content dealing with problems, approaches, and topics in the field of religion.

400-4 Seminar in Religion
Topics chosen by the department. May be repeated with different titles.

410-4 Religious Themes in Literature
(Taught jointly with Department of English; see ENG 460.) Courses offered under this number provide intensive study of literary works in terms of significant and recurring religious themes and images as they can be traced in various cultures, and literary traditions. Junior or senior standing required.

417-4 Evolution
(Taught jointly with Department of Biological Sciences; see BIO 417.) Introduction to the biological, philosophical, theological, and ethical aspects of evolution. Junior or senior standing required.

419-3 Ethics in an Industrial Society: The Responsibility of Business in Society
Ethical responsibilities of business in light of political, moral, social, and religious considerations. Emphasis on analysis and evaluation of the changing framework of responsibilities facing both business organizations and their leaders.

429-4 Foundations for Religion Studies
Introduction to various methods utilized in religion studies and an application of these methods to concrete data.

430-3 Teaching About Religion in the Public Schools
(Taught jointly with College of Education and Human Services; see ED 430.) Introduction to the historical background and court decisions pertaining to teaching about religion in the public schools; current ways in which religion is taught in the public schools; new experimental approaches to teaching about religion.

431-4 Religion in American Life
(Listed jointly with Department of History; see HST 471.) Development of religious thought and institutional life in the United States viewed in relationship to American social change. Offered alternate years.

450-1 to 4, 451-1 to 4 Undergraduate Research in Religion
Intensive consideration of problems and issues in a given area of religion study; topics determined in consultation between student and department. Graded pass/unsatisfactory, at discretion of department.

453-4, 454-4 Age of Renaissance and Reformation
(Listed jointly with Department of History; see HST 453, 454.) Decline of European feudalism and rise of the nation-state; revival of culture and arts; decline of universal Church and growth of religious diversity. 453: 1350-1500. 454: 1500-1648. Offered alternate years.

470-3 Workshop
Intensive study of selected problems (e.g., the teaching of religion in secondary schools, medical ethics) to meet particular needs of participating students. Topics vary from quarter to quarter. May be repeated with different titles subject to maximum limits established by student's department. Junior or senior standing, or permission of instructor required.

481-1 to 4, 482-1 to 4, 483-1 to 4 Independent Reading
Written proposal by each student, with faculty and departmental approval, required for acceptance in course. Enrollment generally limited to juniors and seniors.

Russian/RUS

101-4, 102-4, 103-4 First-Year Russian
Study of vocabulary and structure of the Russian language; practice in conversation, reading, and writing. Must be taken in sequence.

111-4 Essentials of Russian
Introduction to Russian with an emphasis on speaking the language.

201-4, 202-4 Second-Year Russian
Grammar review, reading and discussion of selected texts with practice in speaking and writing. Must be taken in sequence. Prerequisite: RUS 103.

301-4, 302-4 Russian Literature
Historical survey of Russian literature from its beginning to the present. Prerequisite: RUS 202 or equivalent.

341-4, 342-4 Russian Conversation
Emphasis on the culture of the Russian-speaking world. Prerequisite: RUS 202 or equivalent.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of Russian.

471-4 Introduction to Historical and Comparative Linguistics
(Listed jointly with Linguistics; see LI 471.) Permission of instructor required.
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<tr>
<th>Course/Number</th>
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<tr>
<td>242</td>
<td>Courses/Social Work</td>
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### Social Work/SW

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<tr>
<th>Course Number</th>
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<tr>
<td>270-4</td>
<td><strong>Introduction to Social Welfare and Social Work</strong></td>
<td>Introduction to social work program. History, purpose, and effectiveness of the contemporary social welfare system; development of the social work profession. A minimum grade of C must be earned to continue as a major.</td>
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<tr>
<td>280-4</td>
<td><strong>Human Behavior in Social Functioning</strong></td>
<td>Analysis of human behavior in assessment of social functioning as it relates to social work intervention. Includes ego psychology, social systems theory, role theory, and learning theory. May be taken concurrently with SW 270.</td>
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<tr>
<td>320-1 to 6</td>
<td><strong>Workshops in Current Problems</strong> (Listed jointly with Department of Sociology and Anthropology; see SOC 314.)</td>
<td>Intensive study of a particular problem area, utilizing professionally-qualified personnel from academia and the practice community. Specific topics to be added with individual workshops. May be repeated to a maximum of twelve credit hours.</td>
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<tr>
<td>370-4</td>
<td><strong>Community Welfare Organizations and Services</strong></td>
<td>Analysis of community agencies designed to meet social welfare needs. Four-hour field placement per week in a social agency. Should be taken before all 400-level courses. Prerequisite: SW 270, 280, or permission of instructor.</td>
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<tr>
<td>380-4</td>
<td><strong>Basic Practice Theory</strong></td>
<td>Foundation sequence of generic social work practice theory. Problem assessment, data collecting, data analysis, interpretive methods, and evaluation procedures. Introduction to task-centered approach. May be taken concurrently with SW 370. Prerequisite: SW 270, 280, COM 102.</td>
</tr>
<tr>
<td>389-2 to 4</td>
<td><strong>Seminar on Special Problems in Social Work Practice</strong></td>
<td>Selected topics related to current issues in social work practice; readings, research, discussion. Completion of twelve credit hours of social work or permission of instructor required.</td>
</tr>
<tr>
<td>394-2 to 4</td>
<td><strong>Readings in Social Work</strong></td>
<td>May be taken for letter grade or pass/unsatisfactory.</td>
</tr>
<tr>
<td>399-1 to 4</td>
<td><strong>Studies in Selected Subjects</strong></td>
<td>Course of variable content dealing with problems, approaches, and topics in the field of social work. May be taken for letter grade or pass/unsatisfactory.</td>
</tr>
<tr>
<td>462-4</td>
<td><strong>Social Gerontology</strong> (Listed jointly with Department of Sociology and Anthropology; see SOC 462.)</td>
<td>Study of social aspects of aging, the needs of the aging population, and society’s response to these needs.</td>
</tr>
<tr>
<td>463-4</td>
<td><strong>Social Gerontology II</strong></td>
<td>Second course in a two-quarter sequence of social gerontology. Prerequisite: SW 462 or equivalent experience.</td>
</tr>
<tr>
<td>464-4</td>
<td><strong>Racial and Ethnic Awareness in the Human Services</strong></td>
<td>Impact of racism and ethnicity on the delivery of human services. Examination of interpersonal relationships and institutional policies and procedures; provides opportunity to develop strategies for change at both levels. Prerequisite: SW 370 or permission of instructor.</td>
</tr>
<tr>
<td>470-4</td>
<td><strong>Social Welfare Policy</strong></td>
<td>Development, status, and effectiveness of social welfare policies. Application of social work values and knowledge to current policies, programs, and services. It is recommended that this course be taken in the senior year. Prerequisite: SW 370.</td>
</tr>
<tr>
<td>472-4</td>
<td><strong>Social Work and the Law</strong></td>
<td>Legislative base of various social welfare agencies and programs. Legal authority aspects of various social work practice roles. Social work practice relations to judicial, law enforcement, and legislative processes. Permission of instructor required.</td>
</tr>
<tr>
<td>473-4</td>
<td><strong>Child Welfare</strong></td>
<td>Framework for categorizing child welfare problems. Historical and current examination of legislation, policies, programs, and service to address child welfare needs, including the role of the child welfare worker.</td>
</tr>
<tr>
<td>477-1 to 4</td>
<td><strong>Seminar on Special Problems in Social Welfare Policy and Services</strong></td>
<td>Selected topics related to the operation of the social welfare system in America; issues, trends, and problems. Completion of twelve credit hours of social work or permission of instructor required.</td>
</tr>
<tr>
<td>481-4</td>
<td><strong>Advanced Practice: Individuals</strong></td>
<td>In-depth study of social work practice theory for the enhancement of social functioning of individuals, especially within the family context. Prerequisite: SW 380.</td>
</tr>
<tr>
<td>482-4</td>
<td><strong>Advanced Practice: Groups</strong></td>
<td>In-depth study of social group work practice theory, including joint family intervention. Course learning experiences incorporate practice situations. Prerequisite: SW 380.</td>
</tr>
</tbody>
</table>
483-4 Advanced Practice: Families
In-depth study of social work practice theory for the enhancement of family social functioning. Prerequisite: SW 360.

484-4 Advanced Practice: Organizations and Communities
Strategies for effecting change in organizations, service delivery systems, and social welfare resource utilization in communities. Prerequisite: SW 360.

487-4 or 12 Practicum in Social Work
Application of theory to practice in agency settings. Individual supervised learning experiences and on-site seminars under direction of instructor and agency staff. May be repeated to a maximum of twelve credit hours. Applications for placement must be made with the instructor one quarter before planned registration. Permission of instructor required. Prerequisite: SW 481.

490-4, 491-4 Research Methods in Social Work I, II
Sequential study of evaluative research design methodology. Development of criteria for the selection and intelligent use of research reports. Evaluation of selected research reports for relevance to social work practice. Prerequisite: SW 370 or permission of instructor.

494-2 to 4 Independent Research in Social Work
May be taken for letter grade or pass/unsatisfactory.

Sociology/SOC

111-4 The Sociological Perspective
Basic sociological concepts and issues at general introductory level. Exploration of such questions as: How do we become members of society? How do societies change? What affects our beliefs and values?

112-4 Modern Society
Problems facing modern society and possible solutions. Exploration of such questions as: What is the nature of modern society? How are modern political, economic, and educational systems organized?

113-1 SIMSOC (Simulated Society)
SIMSOC is a learning game designed to supplement the materials covered in introductory sociology courses. The game involves students as members of a simulated society. May be taken for letter grade or pass/unsatisfactory. Corequisite or prerequisite: SOC 111.

SOC 111 or 112 is prerequisite for all advanced courses except 210, 212, 221, and 462.

206-4 Collecting Social Data I
Philosophical and applied issues of sociological investigation. Various means of collecting sociological data are analyzed.

210-4 Courtship and Marriage Analysis
Analysis of United States family behavior, stressing courtship, marriage, child rearing, and marital tension.

212-4 Woman's Place in the Eighties
Survey of status and role of woman in today's society drawn from history, biology, psychology, and sociology. Explores sex-role learning, third-world women, institutions of education, economics, politics, marriage and family and future trends.

221-4 Exploring Social Issues
Course of variable content (to be developed). Focus is on specific social problems. Topics vary from quarter to quarter. May be repeated to a maximum of twelve credit hours with different titles.

301-4 History of Sociological Theory
Historical study of the emergence and development of sociological thought from Adam Ferguson and Auguste Comte through the nineteenth century; emphasis on the basic writings of Comte, Spencer, Marx, Durkheim and Max Weber. Nine credit hours of sociology required.

303-4 Contemporary Sociological Theory
Continuation of SOC 301. Analyzes contemporary sociological theory (structural functionalism, symbolic interactionism, critical theory, phenomenological theory) with a focus on the interpretation of society, and on such major figures as Talcott Parsons, Alfred Schutz, Theodor Adorno, and Erving Goffman.

311-4 Technology and Society
(Taught jointly with Department of Engineering; see EGR 300.) Important developments in engineering and technology; their interrelations with society and human values viewed in historical and in contemporary perspective. Prerequisite: SOC 111, 112.

312-1 to 6 Workshop in Current Problems
Intensive study of a particular problem area, utilizing professionally qualified personnel from the academic and community environments. Specific subtitles to be added with individual workshops. May be taken for letter grade or pass/unsatisfactory. May be repeated to a maximum of twelve credit hours with different topics. Permission of instructor required.

314-1 to 6 Workshop in Current Problems
(Listed jointly with Department of Social Work; see SW 399.) Intensive study of a particular problem area, utilizing professionally-qualified personnel from the academic and community environments. Specific titles to be added with individual workshops. May be taken for letter grade or pass/unsatisfactory. May be repeated to a maximum of twelve credit hours with different titles.
Courses/Sociology

316-1 to 6 Workshop in Current Problems
Intensive study of a particular problem area, utilizing professionally-qualified personnel from the academic and community environments. Specific titles to be added with individual workshops. May be repeated to a maximum of twelve credit hours with different titles.

320-4 Sociology of Deviant Behavior
Extensive exploration of the various sociological approaches to the study of deviance and social disorganization with emphasis on contemporary sociological theory and research. Junior or senior standing or permission of instructor required.

330-4 Criminology
Survey of crime, some causal theories, and attempts at crime prevention in the United States.

332-4 Juvenile Delinquency
Problems of definition and treatment of delinquency. Preparation for further study and work with delinquents.

340-4 Social Organization
Theories and analysis of social organization from micro to macro levels with emphasis on theories of equilibrium and disequilibrium.

341-4 Social Stratification
Structures, theories, and consequences of social inequality with special emphasis on the United States.

342-4 People on the Move
An introductory survey of forces influencing the structure and growth of human populations and the social consequences of population changes.

345-4 Social Change
Study of dynamic processes such as evolution, revolution, regression, diversification, disintegration, and reconstitution at micro and macro social levels.

350-4 Sociology of Occupations and Professions
Investigation, analysis, and discussion of contemporary theories focusing on the relationship of the individual to work.

360-4 Sociology of Family
Sociological analysis of development of the family, its relationship to society, and its contribution to personality.

361-4 Religion and Society
(Listed jointly with Department of Religion; see REL 361.) General treatment of religion, examining the influence of religious ideas and institutions on other social institutions, and the influence of society on religion. Introductory courses in sociology or religion required.

363-4 Sociology of Education
The school as a social institution. Internal and external influences, structure of the school social system, and sociological issues affecting the school such as social class factors and equality of educational opportunity.

360-4 Individual and Society
Interaction between society and the individual, forms and content of social relationships, and socialization as a social process. Emphasis on the basic writings of G.H. Mead, Cooley, Gentile, and others.

390-2 to 4 Directed Readings in Sociology
May be taken for letter grade or pass/unsatisfactory.

396-2 Careers for Sociology Majors
A combination workshop and field study in which students learn how to prepare a resume, how to find out about career possibilities, and how to meet people who are active practitioners. Prerequisite: COM 304.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of sociology. May be repeated to a maximum of twelve credit hours with different titles.

401-4 Selected Topics in Theory/Methods
Specific topics announced each time course is offered. May be repeated to a maximum of twelve credit hours with different topics. Permission of instructor required.

405-4 Seminar in Sociological Theory
An in-depth analysis of selected topics in sociological theory for advanced students, especially those considering graduate study. Topic varies from year to year.

407-4 Collecting Social Data II
An advanced course in social research techniques which provides students the opportunity to design and carry out a full-scale research project within a seminar-like class setting. Students are encouraged to select research problems related to their major interest areas.

432-4 Penology
Historical development and critical assessment of penal institutions. Field visits to selected institutions.

433-4 Internship in Corrections
Supervised field experience in corrections (probation, parole, jail). Course requires readings, a log, progress reports, and a paper synthesizing readings and field experience. Enrollment required for two consecutive quarters. Prerequisite: completion of six credit hours from SOC 330, 332, 432, or permission of instructor.
434-4 Social Life in Extreme Conditions
Examines the concept of social organization via the forms social interaction takes in extreme conditions such as mental hospitals, concentration camps, prisons, and skid rows. Junior or senior standing or permission of instructor required.

439-4 Selected Topics in Problems/Deviance
Course of variable content. Specific topic announced when course is offered. May be repeated to a maximum of twelve credit hours with different topics. Permission of instructor required.

440-4 Bureaucracy and Bureaucrats
Broad theoretical and practical study of individual and group relationships in formal organizations viewed as total social systems.

441-4 Industrial Sociology
Cross-cultural analysis of industrialization, organization of relationships within industrial social groups.

442-4 Race and Minority Relationships
Study of intergroup, racial and ethnic group relations, including the processes and consequences of conflict, prejudice, and discrimination.

444-4 Urban Sociology
An approach to understanding the causes and consequences of urbanization and the various kinds of urban life.

446-4 Neighbors and Communities
Examination of various types of American communities and major theories concerning them.

460-4 Sociology of Law
The law and legal institutions as revealed in selected classical and contemporary sociological literature. Permission of instructor required.

461-4 Medical Sociology
The social dimension of health and illness. Consideration of the patterns of disease, along with the organization, provision, and delivery of medical services.

462-4 Social Gerontology
(Listed jointly with Department of Social Work; see SW 462.) Study of social aspects of aging, the needs of the aging population, and society's response to the needs.

463-4 Social Gerontology II
Second course in a two-quarter sequence of social gerontology. Explores in-depth concepts and issues related to aging. Prerequisite: SOC 462 or permission of instructor.

470-4 The Future of the Family
Investigation, analysis, and discussion of contemporary research focusing on the family as a changing social institution.

479-4 Selected Topics in Social Institutions
Variable content. Specific titles announced in quarterly class schedule when course is offered. May be repeated to a maximum of twelve credit hours with different titles. Permission of instructor required.

481-4 Sociology of Small Groups
Study of face-to-face interaction with emphasis on both intergroup and intragroup structures and processes.

489-4 Selected Topics in Microsociology
Variable content. Specific topic announced when course is offered. May be repeated to a maximum of twelve credit hours with different topics. Permission of instructor required.

490-2 to 4 Independent Research in Sociology
May be taken for letter grade or pass/unsatisfactory.

Spanish/SPN
101-4, 102-4, 103-4 First-Year Spanish
Study of the vocabulary and structure of the Spanish language; practice in conversation, reading, and writing. Must be taken in sequence.

111-4 Essentials of Spanish
Introduction to Spanish with an emphasis on speaking the language.

201-4, 202-4 Second-Year Spanish
Grammar review, reading, and discussion of selected texts with practice in speaking and writing the language. Must be taken in sequence. Prerequisite: SPN 103 or equivalent.

Advanced Courses
SPN 202 or equivalent is the minimum prerequisite for all advanced Spanish courses.

301-4, 302-4 Spanish Literature
Historical survey of Spanish literature. 301: from the beginning to Romanticism. 302: Romanticism to the present.

321-4, 322-4 Spanish Composition
Oral and written composition in Spanish; translations from English into Spanish.

331-4, 332-4 Spanish-American Literature
Reading of prose, poetry, and plays by Spanish-American writers. 331: from pre-Columbian times to Romanticism. 332: Romanticism to the present.
246 Courses/Spanish

341-4, 342-4 Spanish Conversation
Practice in oral use of Spanish emphasizing the culture of the Hispanic world.

361-2 Spanish Phonetics
Study of the vowel and consonant sound system through phonetic method; intonation.

381-1, 382-1, 383-1 Applied Elementary Spanish Instruction
Spanish majors assist elementary course instructors in conducting classes. For Spanish majors only. Permission of instructor required.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of Spanish.

The following courses require SPN 302 or 322 or permission of instructor, in addition to the listed prerequisites.

401-4 The Spanish Picarresque Novel
Intensive reading of such works as Lazarillo de Tormes, Vida del Buscon, and Guzman de Alfarache.

402-4 The Spanish Novel of the Nineteenth Century
Nineteenth-century prose work by Galdós and others.

403-4 Advanced Studies: Language/Civilization
Variable content. Topic chosen by instructor. Conducted in Spanish. Prerequisite: SPN 342 or permission of instructor.

411-4 Golden Age Drama
Intensive readings of dramas by playwrights of the sixteenth and seventeenth centuries.

412-4 Modern Drama
Intensive readings of dramas by playwrights of the nineteenth and twentieth centuries.

421-4, 422-4 Cervantes
Intensive study of the works of Cervantes, including Don Quixote, novelas ejemplares, entreremeses, and longer dramatic works. Lectures, discussions, and oral reports on Cervantes and his time.

431-4 Seminar in Spanish Literature
Intensive study of selected topics in peninsular literature. Background lectures, oral reports, and discussions. Topics vary from quarter to quarter.

432-4 Seminar in Spanish-American Literature
Intensive study of selected topics in Spanish-American literature. Background lectures, oral reports, and discussions. Topics vary from quarter to quarter. Prerequisite: SPN 332 or permission of instructor.

441-4 Contemporary Spanish Literature
Reading in the novel, poetry, and drama of major Spanish writers in the post-Civil War period.

442-4 Contemporary Latin-American Literature
Readings in the novels, poetry, and drama of various Latin-American writers from the late 1930s to the present. Prerequisite: SPN 332 or permission of instructor.

450-1 to 4 Undergraduate Research in Spanish
Topics vary from quarter to quarter.

462-4 The Generation of 1898
Novel, poetry, and theatre of Unamuno, Baroja, and others.

471-4 Introduction to Historical and Comparative Linguistics
(Listed jointly with Linguistics; see LI 471.)

481-4, 482-4 Independent Reading for the Advanced Student
Topics vary from quarter to quarter.

Statistics/STT

164-3 Elementary Statistics I
Numerical descriptive methods; the axioms of probability: events; random variables; expected values; introduction to the binomial and normal distributions. Adequate high school preparation required. Prerequisite: MTH 127 or equivalent or at least Level 4 on math placement test.

165-1 Elementary Statistics Laboratory I
Data-oriented problems in descriptive statistics and probability at the introductory level. Corequisite: STT 164.

265-3 Elementary Statistics II
Statistical inference: point and interval estimation of the mean, the binomial parameter, hypothesis testing, the t distribution, population variance. Linear regression and correlation, least squares, chi-square, and contingency tables. The analysis of variance. Examples from social, industrial, clinical, educational, and other applications. Prerequisite: STT 164.

266-1 Elementary Statistics Laboratory II
Data-oriented problems in statistical inference at the elementary level. Corequisite: STT 265.

360-4, 361-4 Applied Statistics I, II
Introduction to applied probability and statistics. Data handling, using electronic calculators and packaged computer programs. Standard parametric statistical methods considered. Prerequisite: for 360, two courses in calculus; for 361, STT 360.

363-3 Engineering Statistics
Introduction to probability, distributions, and statistical methods, using calculus to develop the necessary theory. Intended for junior engineering students who have finished the calculus sequence. Prerequisite: MTH 232.
368-4 **The Design of Sample Surveys**
Introduction to all phases of survey work, including preparations to launch the survey, actual conduct of operations, processing of data, and writing of the report. Sampling methods covered selected from: unequal probability, stratified, cluster, replacement, double, and simple random sampling. Completion of two courses in statistics required.

396-1 to 5 **Independent Reading in Statistics and Probability**
Topics vary from quarter to quarter. Permission of instructor required.

396-1 to 5 **Topics in Statistics and Probability**
Permission of instructor required.

401-4 **Nonparametric Methods**
Distribution-free estimation and hypothesis testing procedures. Includes methods for use in one- and two-sample location and dispersion problems, nonparametric alternatives to ANOVA and regression, goodness-of-fit tests, measures of association, and tests for randomness. Prerequisite: STT 466 or equivalent.

461-4 **Theory of Statistics I**
Probability models, density and distribution functions, expectation, marginal and conditional distributions, stochastic independence, moment generating functions, central limit theorem, decision theory, and estimation of parameters. Prerequisite: MTH 232 or permission of instructor.

462-4 **Theory of Statistics II**
Hypothesis testing, linear model, and nonparametric methods. Prerequisite: STT 461 or permission of instructor.

466-4 **Statistical Methods I**
Classical statistical techniques for analysis and interpretation of research data, with heavy emphasis placed on the use of packaged computer routines. Includes descriptive statistics, normal distributions, one- and two-sample t-tests, sample contingency table analysis, simple linear regression and correlation. Introduction to analysis of variance. Junior standing required.

467-4 **Statistical Methods II**
Continuation of STT 466. Includes further topics in analysis of variance, multiple and curvilinear regression, multiple and partial correlation, analysis of covariance, some exploratory data analysis. Prerequisite: STT 466.

469-4 **Introduction to Experimental Design**
Use of techniques of experimental designs, blocking, Latin squares, regression design. One or more statistical computing packages are used to analyze resulting data. Emphasis is placed on applications to various areas of scientific research. Prerequisite: STT 467 or equivalent.

486-1 to 5 **Independent Reading in Statistics and Probability**
Permission of instructor required.

496-1 to 5 **Topics in Statistics and Probability**
Permission of instructor required.

**Study Skills/SS**

**Credit for Study Skills Courses**
Credit for these courses does not count toward a degree.

**062-1 Understanding the Wright State System**
An introduction to the purpose of the university. An explanation of policies, procedures, and regulations and how they relate to the student.

**087-1 College Study Strategies**
The course offers "how to" advice on topics such as note-taking, time management, preparing for exams, textbook skills, memory training, library usage, etc. Individual and group study-counseling offered as time permits.

**089-3 Fundamental English Skills I**
Helps students develop and improve writing skills. Subject areas include grammar, sentence structure, and paragraph development.

**091-3 Reading Improvement and Study Skills**
Individual instruction designed to help students improve study habits or reading skills. Demonstrates how to improve levels of concentration, comprehension, and retention. Special topics include note-taking, vocabulary and spelling enrichment, preparing for exams, research, and reducing test anxiety.

**092-3 Fundamental English Skills II**
Builds on skills developed in SS 089. Helps students write grammatically correct, logical, concisely-organized papers and themes. Course covers paragraph development and concludes with the writing of a 200- to 300-word theme. Prerequisite: SS 089 or equivalent.

**093-3 Basic Math Skills**
Available to students who need help in arithmetic functions. Topics include properties of whole numbers, primes and composites, arithmetic operations, decimals, ratios, rates, proportions, percents, and elementary algebra functions.
2 4 8 Courses/Study Skills

094-3 Basic Science Concepts
Designed to generate a genuine interest in science and to teach concepts and math fundamental to the understanding of biology, geology, chemistry, and physics. 3 hours lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

095-3 Fundamentals of Oral Communication
Provides a background in the essential elements of functional oral communication and offers opportunities for students to improve the quality of their communication skills. 1 hour lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

096-3 Psychology Concepts
An individualized course designed to introduce students to the field of psychology and to specific psychological principles, concepts, and terminology. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

097-3 Biology Survey
Focuses on building a vocabulary of biological terms and acquaints students with the concepts involved in the study of cell biology, heredity, and evolution. 3 hours lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

098-3 Chemistry Survey
Provides an overview and an understanding of twelve principal topics taught in general chemistry. 3 hours lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

099-3 Geology Survey
Designed for students with no prior knowledge of geology. Provides an overview of basic geology concepts, terms, and their application to everyday living. 3 hours lecture, 2 hours lab. May be taken for letter grade or pass/unsatisfactory. Enrollment limited to federal grant Special Services Program participants.

Technical Courses
See Technical Course Descriptions chapter

Theatre/TH
See Motion Pictures/TH and Dance/DAN for additional course listings.

101-4 The Arts of the Theatre
Develops understanding and appreciation of drama and the theatre. Critical analysis of the theatre as art form; includes functions of playwright, actor, director, critic, designer, and theatre architect.

102-3 Introduction to Technical Theatre
General survey of technical aspects of theatre including its personnel and organization.

110-1 to 3 Theatre Arts Activities
Participation in University Theatre productions; specific assignments determined at initial meeting. May be repeated for credit. A maximum of six quarters applicable to requirements for theatre major.

120-3 Makeup for the Theatre
Theory and practice of stage makeup. Prerequisite: TH 101, 102.

121-2 Makeup for the Performing Artist
Experience in the use of cosmetics to project the performer's facial features for the media of television, motion pictures, dance, and opera.

124-2, 125-2, 126-2 Theatre Graphics I
Drawing for the theatrical designer. Exploration of media and concepts. Prerequisite: for 124, TH 124 or permission of instructor; for 126, TH 125 or permission of instructor.

144-3.5, 145-3.5, 146-3.5 Acting I
Training imagination, mind, body, and voice of the beginning actor. Must be taken in sequence. All students in the acting program must receive a grade of C or better to continue in the sequence.

147-3, 148-3, 149-3 Acting Aesthetics
A generalized acting course which includes various aspects of movement, vocal technique, improvisation, and scene work. Designed for students who are emphasizing the technical areas of the arts. Enrollment limited to technical design majors. Departmental approval required for TH 148 and 149. Prerequisite: for 148, TH 147; for 149, TH 148.

154-1.5, 155-1.5, 156-1.5 Theatre Speech I
Through tactile exercise and improvisation, the student learns proper vocal placement and support to enable him/her to develop a resonant, stageworthy voice. Particular emphasis on corrective coaching of individual speech problems. Prerequisite: for 155, TH 154; for 156, TH 155. Corequisite: for 154, TH 144; for 155, TH 145; for 156, TH 146.
203-3 Contemporary Theatre
Critical study of contemporary theatre and its standards and production methods. Attendance at several current productions required. Theatre tickets must be purchased by the student. Prerequisite: TH 101.

220-3 Stagecraft
Introduction to theory and practice of sceneography and study of materials and techniques of executing stage scenery. Involves practice in construction and mounting of a production. Lab hours to be arranged. Prerequisite: TH 102.

224-3, 225-3, 226-3 Theatre Graphics II
Instruction in and practice with the basic graphic tools, materials, and techniques used in theatre design. Includes freehand sketching, calligraphy, mechanical drawing, and painting techniques. Sophomore standing as a theatre major required. Prerequisite: for 224, TH 102; for 225, TH 224; for 226, TH 225.

227-3 Stage Lighting
Mechanics of stage lighting, including the physics of light, electricity, lighting instruments and control devices, and the basic theories of lighting the stage. Lab hours to be arranged. Prerequisite: TH 220.

229-3 Costume Technology
Instruction in two and three dimensional techniques for drafting period garments. Products and techniques used in aging and distressing theatrical costumes. Prerequisite: TH 226 or permission of instructor.

244-3, 245-3, 246-3.5 Acting II
Second year of acting emphasizing character study. Emphasis placed on audition at the end of spring quarter. Must be taken in sequence. All students in the acting program must receive a grade of C or better to continue in the sequence. Prerequisite: for 244, TH 146.

254-1, 255-1, 256-1 Theatre Speech II
Focuses on expansion and strengthening of the actor's voice. Special emphasis placed on clear articulation and proper pronunciation of the phonemes of American standard stage speech. Prerequisite: for 254, TH 156; for 255, TH 254; for 256, TH 255. Corequisite: for 254, TH 244; for 255, TH 245; for 256, TH 246.

257-0.5, 258-0.5, 259-0.5 Theatre Chorus
Vocal training with emphasis on choral singing for musical theatre. Prerequisite: for 258, TH 257; for 259, TH 258. Corequisite: for 257, TH 244; for 258, TH 245; for 259, TH 246.

290-3 Theatre Management
Operational procedures for school, community, and professional theatre. Includes problems of organization, personnel, budgeting, purchasing, accounting, ticket sales, publicity, promotion, and house management. Prerequisite: TH 101.

301-3 Design for the Theatre: Art On Stage
Design for the theatre presented as a recognized art form. The analysis of theatre design, costumes, lights, and sets as graphic arts, and in relation to the other theatrical art forms. Prerequisite: TH 101, 102.

304-4 Dramatic Writing
Theory and practice of the techniques of dramatic writing, emphasizing the writing of original plays. Prerequisite: ENG 111, 112, or permission of instructor.

310-1 to 3 Theatre Arts Management Practicum
Participation in University Theatre Arts Management activities. Specific assignments determined at initial meeting. May be repeated for credit. A maximum of twelve credit hours applicable to degree requirements for theatre major.

311-3 Oral Reading of Drama
Analysis and practice in reading from plays and dramatic poetry; reader's theatre; performance.

320-6 Applied Theatre Technology I
Practical study in technical execution. Emphasis on daily operation of theatre production shops. Participation in all major department productions required. May be repeated. A maximum of eighteen credit hours applicable toward degree. Enrollment limited to B.F.A. technology majors. Permission of instructor required. Prerequisite: TH 220, 227, 229.

324-3, 325-3, 326-3 Theatre Design I
Aesthetics of theatre design and the analysis of the period fashion, interior decor, and architecture used by theatre designers. Prerequisite: for 324, TH 226 and 301 or permission of instructor; for 325, TH 324; for 326, TH 325.

340-2, 341-2, 342-2 Movement for the Actor I
Basic movement skills such as period movement, dancing, and stage combat as they relate to performing; designed to give the performer total perception and to discover the physical and psychological stimulus for movement. Enrollment limited to studio acting majors. Must be taken in sequence. Prerequisite: for 340, TH 246.
250 Courses/Theatre

344-3.5, 345-3.5, 346-3.5 Acting III
First year of Professional Actor Training program. Must be taken in sequence. All students in the acting program must receive a grade of C or better to continue in the sequence. Admission by audition only. Prerequisite: for 344, TH 246.

350-4 Directing
Problems of script selection and interpretation, casting, rehearsing, and performance. Techniques of composition and movement; the proscenium stage and open stage. Preparation of the prompt book. Prerequisite: TH 244.

352-2 Directing Laboratory
Presentation of a one-act play in the studio theatre for departmental and public audiences. Prerequisite: TH 350.

354-1, 355-1, 356-1 Theatre Speech III
Speech for the classical stage. Emphasis on unique demands of communication of dramatic verse text through exploration of Shakespeare, Molière, and Restoration playwrights. Particular attention given to diction or the art of emphasis to illuminate poetic language. Prerequisite: for 354, TH 256; for 355, TH 354; for 356, TH 355. Corequisite: for 354, TH 344; for 355, TH 345; for 356, TH 346.

357-0.5, 358-0.5, 359-0.5 Theatre Chorus
Vocal training with emphasis on choral singing for musical theatre. Prerequisite: for 357, TH 259; for 358, TH 357; for 359, TH 358. Corequisite: for 357, TH 344; for 358, TH 345; for 359, TH 346.

360-3 The History of the Theatre I
A survey of the history and development of theatrical production from the Greeks through the Renaissance and including primitive forms both ancient and contemporary. Emphasis on the history of play production rather than on literature. Prerequisite: TH 101.

361-3 The History of the Theatre II
A survey of the history and development of theatrical production from the seventeenth century through the present day. Emphasis on the history of play production. Prerequisite: TH 101.

362-3 Style and Concept
An investigation of the development of production concept in terms of visual and intellectual style choices in performance, interpretation, and design. For theatre arts majors only. Junior or senior standing and permission of instructor required.

365-3 Theory and Criticism
Changing concepts of dramatic structure and criticism through comparative examination of works of selected playwrights and critics. Chief theories of dramatic production in relation to aesthetic principles.

366-3, 367-3, 368-3 Theatre Repertoire I, II, III
Special problems of analysis, acting, and staging plays from various periods of theatre history are explored from a production point of view. 366: from Aeschylus to Jonson. 367: from Beaumont to Chekhov. 368: from Shaw to Albee.

370-3 Creative Dramatics
Study of the nature of creativity in children and of the techniques which develop sensitivity, bodily freedom, characterization, and impression.

390-2 to 4 Projects in Theatre
Advanced individual work. Students should submit prospectus for departmental approval by the middle of the quarter preceding registration.

399-1 to 4 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of theatre.

412-3 Advanced Stage Makeup
Design and application of the advanced makeup techniques of prosthetics, hair ventilation, and wig making. Prerequisite: TH 120.

420-6 Applied Theatre Technology II
Courses offered under this number provide intensive study of selected aspects of technical theatre. Specific titles are announced each time course is offered. Departmental approval required.

424-6, 425-6, 426-6 Theatre Design II
Intensive study of theatrical design, costumes, scenery, and lighting, with a focus on script interpretation. Prerequisite: for 424, permission of design/technology faculty. for 425, TH 424; for 426, TH 425.

427-3 Advanced Stage Craft
An advanced study of stage craft practices including complex scenery layout, rigging, power drive systems, and materials. Enrollment limited to B.F.A. technology majors. Permission of instructor required. Prerequisite: TH 220, 227, 229.

428-3 Advanced Costume Technology
Advanced techniques of costume technology with emphasis on developing patterns, cutting and draping, and drafting. Enrollment limited to B.F.A. design technology majors. Prerequisite: TH 220, 227, 229 or permission of instructor.
429-3 Advanced Theatre Crafts
A lecture/workshop class with variable topics including property making, furniture building for the stage, and scenic painting. Specific topics announced each quarter course is offered. May be repeated for credit. Enrollment limited to B.F.A. design technology majors. Permission of instructor required.

440-2, 441-2, 442-2 Movement for the Actor II
Visualizing techniques along with specific analysis of the ideas of LeCoq, Marceau, Alexander, Davis, and others. Must be taken in sequence. Enrollment limited to B.F.A. studio acting majors. Prerequisite: for 440, TH 342; for 441, TH 440; for 442, TH 441.

444-3.5, 445-3.5, 446-3.5 Acting IV
Second year of Professional Actor Training program. Must be taken in sequence. All students in the acting program must receive a grade of C or better to continue in the sequence. Prerequisite: for 444, TH 346.

447-3, 448-3 Acting Thesis Project
Intensive work on a final creative performance project. Enrollment limited to acting studio seniors. Departmental approval required. Prerequisite: TH 444.

450-3 Studies in Directing
Courses offered under this number provide intensive study of selected aspects of directing for the theatre. Specific title announced each time course is offered. Departmental approval required.

451-3, 452-3 Directing Thesis Project
Original directed research culminating in a creative performance project. Enrollment limited to B.F.A. directing majors. Departmental approval required. Prerequisite: TH 352.

454-1, 455-1, 456-1 Theatre Speech IV
Thorough analysis and study of sounds of foreign dialects and regional accents. Student explores transformation of his/her own voice. Additionally, student learns to vary stage voice for age and character roles. Prerequisite: for 454, TH 356; for 455, TH 454; for 456, TH 455. Corequisite: for 454, TH 444; for 455, TH 445; for 456, TH 446.

457-0.5, 458-0.5, 459-0.5 Theatre Chorus
Vocal training with emphasis on choral singing for musical theatre. Prerequisite: for 457, TH 359; for 458, TH 457; for 459, TH 458. Corequisite: for 457, TH 444; for 458, TH 445; for 459, TH 446.

460-3 Studies in Theatre History
Courses offered under this number provide intensive study of selected aspects of theatre history. Specific title announced each time course is offered. Departmental approval required.

470-3 Studies in Child Drama
Courses offered under this number provide intensive study of selected aspects of children's theatre and creative dramatics. Specific title announced each time course is offered. Departmental approval required.

491-3 Seminar in Theatre
Selected topics in theatre. Permission of instructor required.

495-3 to 12 Workshop in Theatre
Intensive study of special topics or problems or intensive experience in theatrical presentations, according to particular needs of participants. Specific titles to be announced for each workshop. May be repeated for credit. Junior or senior standing or permission of instructor required.

498-12 to 15 Professional Theatre Internship
Placement of superior upper-division B.F.A. theatre majors in various professional theatres as management or production interns. Enrollment limited to B.F.A. theatre majors. Junior or senior standing and departmental approval required.

University Honors/UH

101-1 to 4 Directed Study
Faculty-directed research or reading. Student proposals require approval from the University Honors Committee. Enrollment limited to Freshman Scholars. May be repeated to a maximum of twelve credit hours.

201-3 to 4 Studies in the Humanities
Explores the humanities comparatively, stressing similarities and differences in themes, methods, materials, theoretical constructs, and problems, focusing on such topics as humanity and freedom or the city and the individual.

202-3 to 4 Studies in the Social Sciences
Explores the social sciences comparatively, stressing similarities and differences in themes, methods, materials, theoretical constructs, and problems, focusing on such topics as people and groups or institutions and bureaucracies.

203-4 Studies in the Natural Sciences
Varying topics or issues in the natural sciences approached in an interdisciplinary framework. Course permits intensive coverage of subject matter while also focusing on the inter-relationships of the natural scientific disciplines. Enrollment limited to honors students. Completion of two quarters of a lab science approved for General Education credit required.
Courses/University Honors

400-3 to 4 University Honors Seminar
Course of variable content, with emphasis on broadly interdisciplinary topics or issues. Enrollment limited to juniors and seniors with grade point averages of 3.0 or higher.

Urban Studies/URS

211-4 Introduction to Urban Studies
Interdisciplinary introduction to general field of urban studies. Reviews "idea of the city" and meaning of urban life.

399-1 to 6 Studies in Selected Subjects
Course of variable content dealing with problems, approaches, and topics in the field of urban studies.

411-4 Seminar in Urban Studies
Includes development of a major research paper and a bibliography in urban studies. Enrollment limited to seniors in urban studies. Permission of instructor required.

490-1 to 4 Special Topics
Advanced study in selected topics in urban studies. Topics may include new developments in methodology or the various subfields of the discipline. May be repeated to a maximum of eight credit hours.

492-6 Urban Studies Internship
Senior-level internship in which the student works in the offices of a local public agency. Enrollment limited to urban studies majors. May be repeated once. Permission of instructor required.
Technical Course Descriptions

Offered only at WOBC
The following technical courses relate to the technical education programs leading to the associate degree and are offered only at the Western Ohio Branch Campus.

**Technical Courses**

**Technical Accountancy/TAC**

201-3, 202-3, 203-3 *Accounting Concepts and Principles I, II, III*
Introduction to accounting for business enterprises, including preparation and analysis of financial statements and reports for managers and other users. Must be taken in sequence.

210-3, 211-3 *Financial Accounting I, II*
Principles and procedures in accounting for assets, liabilities, equity, and results of operations for business enterprises. Prerequisite: for 210, TAC 203; for 211, TAC 210.

220-3, 221-3 *Cost Accounting I, II*
Practice of cost accounting and cost procedures in industry: job order, process, and standard cost methods. Prerequisite: for 220, TAC 203; for 221, TAC 220.

224-3 *Payroll Accounting*
Familiarization of payroll accounting systems, understanding tax laws in relation to payroll, and practical application to records and related tax forms. Prerequisite: TAC 202.

225-3, 226-3 *Tax Accounting I, II*
Income tax regulations related to business and individual income tax reporting. Prerequisite: for 225, TAC 203; for 226, TAC 225.

232-3 *Federal Tax Planning*
Federal tax system: opportunities for effective business tax planning. Prerequisite: TAC 203.

241-3 *Accounting Information Systems*
Analysis of accounting information needs of an organization, alternatives for satisfying these needs, problems in implementation of useful accounting information systems. Prerequisite: TAC 203.

251-3 *Corporation Accounting*
Branch accounting and consolidated financial statements. Prerequisite: TAC 211.

271-3 *Fund Accounting*
Application of accounting principles to municipalities, governmental entities, and nonprofit organizations. Prerequisite: TAC 203.

280-3 *Auditing*
Introduction to principles, procedures, and standards involved in the conduct of an audit by an accountant. Prerequisite: TAC 203.

290-3 *Comprehensive Accounting Course*
Final course to integrate the student’s program into a cohesive accounting program and to promote accounting problem-solving capabilities. Prerequisite: TAC 211.

295-1 to 3 *Independent Study*
Directed studies on selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.

297-1 to 5 *Studies in Selected Topics*
Course of variable content dealing with problems, approaches, and topics in the field of accounting. May be taken for letter grade or pass/unsatisfactory. May be repeated with different titles.

299-4 *Internship*
Practical business experience in accounting for a qualified student under the joint planning and coordination of faculty, student, and business representative.

**Technical Administration/TAD**

101-3 *Business and Society*
Introduction to American business and its environment.

103-3 *Introduction to Data Processing and COBOL*
Acquaints the inexperienced with the data processing fundamentals and terminology pertinent to programming business systems and requires the student to write and test COBOL programs.

232-3 *Business Law*
The study of law as it relates to business organizations and transactions. Considers the nature and classification of law courts, torts, contracts, corporations, and negotiable instruments.

**Technical Automotive/TAU**

100-3 *Basic Automotives*
Automotive mechanics with emphasis on the language of automotives and explanation of the major automotive functions. Concentration on engine operation, fuel, ignition, and brake systems with demonstrations of servicing procedures. Students have the opportunity to apply what they learn to their cars in the lab. Students must provide their own hand tools and eye protection. 1 hour lecture, 4 hours lab.

101-3 *Service Orientation and Maintenance*
Orientation to the proper use of welding equipment, grinding, brake drum, and disc lathe, drilling and tapping operations, lubricating procedures, and service on working vehicles. 1 hour lecture, 4 hours lab.
102-4 Electrical Circuits
Study and diagnosis of malfunctions in the electrical system by use of wiring diagrams and testing instruments. Special emphasis is on the study of breaker point ignition, function of coils and condensers, and the use of the distributor tester. 2 hours lecture, 4 hours lab. Prerequisite: TEG 207 or permission of instructor.

111-5 Engine Diagnosis I
Study of automotive engines with emphasis placed on operating principles, theory, design, and construction of the different types of engines. Lab work consists of disassembly, overhaul, and assembly of different types of engines. 2 hours lecture, 6 hours lab. Prerequisite: TAU 100.

112-4 Engine Diagnosis II
Diagnosis and operating principles of the battery, starter, electronic and computerized ignition systems, generator, alternator, and voltage regulators with emphasis on overhaul and testing of each component. 2 hours lecture, 4 hours lab. Prerequisite: TAU 111.

113-5 Engine Diagnosis III
Tune-up and diagnostic procedures with emphasis on exhaust and emission controls, ignition and the automatic choke. Tests are performed using oscilloscopes and distributor testers. 2 hours lecture, 6 hours lab. Prerequisite: TAU 112.

200-4 Suspension and Brakes
Front suspension geometry, frames, shock absorbers, steering, alignment and front end adjustment, brake hydraulics and brake systems, servicing. Brake lathe and brake shoe grinder use. 2 hours lecture, 4 hours lab. Prerequisite: TAU 101.

202-3 Standard Transmission and Drive Line
The operation of standard transmissions, clutches, propeller shafts, universal joints, differentials, axle shafts, and bearings used in gasoline and diesel-powered vehicles. Disassembly and repair of these parts are accomplished in the lab. Noise, vibration, and harshness are also studied. 1 hour lecture, 4 hours lab. Basic hand tools are required. Prerequisite: TAU 101.

203-3 Automatic Transmissions
Covers fundamentals of operation, diagnostic procedures, and specific servicing instructions for current passenger car automatic transmissions, including overdrive. Removal, disassembly, repair, and reassembly are accomplished in the lab. 1 hour lecture, 4 hours lab. Basic hand tools are required. Prerequisite: TEG 209.

204-3 Emissions
Study of governmental regulations, major causes of air pollution, and emission control methods; effect of the emission control systems (and their malfunction) on engine operation. 2 hours lecture, 2 hours lab. Prerequisite: TAU 113.

206-3 Fuel Systems
Basic principles of fuel systems, carburetors, fuel pumps, and fuel injection as related to internal combustion engines. 1 hour lecture, 4 hours lab. Basic hand tools required. Prerequisite: TAU 113.

220-3 Air Conditioning
Principles of automotive and truck air conditioners including heat transfer, change of state, cooling thermostatic control, and pressure-temperature relationships. Other areas studied are testing, diagnosis, repair, servicing, and proper operation of hydraulic systems. 1 hour lecture, 4 hours lab. Prerequisite: TAU 113.

230-4 Diesel Training
Designed to train graduates as diesel mechanics to work on the basic components of the car. 2 hours lecture, 4 hours lab. Prerequisite: TAU 113.

240-3 Parts Managers' Course
Covers all phases of parts inventory, numbering, and computer functions of a parts warehouse. 1 hour lecture, 4 hours lab.

250-4 Testing and Repairs
Oscilloscope theory and scope engine diagnosis; distributor testing machine operation and generator bench operations; engine troubleshooting theory and practice. 2 hours lecture, 4 hours lab. Basic hand tools and permission of instructor required.

251-4 Engine Rebuilding
Covers all phases of engine rebuilding. Students tear down and rebuild engines in the lab using cylinder boring and cylinder head service equipment. Engines are test run after rebuilding. Basic hand tools and permission of instructor required.

295-1 to 3 Independent Study
Directed study on selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.

297-1 to 4 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of automotive technology. May be taken as often as topics vary.

299-4 Internship
Practical automotive experience for a qualified student as a mechanic under the joint planning and coordination of faculty, student, and automotive representative.
Technical Data Processing/TDP

121-4, 122-4 COBOL I, II
Programming elements of COBOL language; techniques for debugging and interpreting computer output; linkage to subroutines and overlays; file structures involving both sequential and random access; case studies with business applications. 3 hours lecture, 2 hours lab. Prerequisite: for 121, TAD 103 or permission of instructor; for 122, TDP 121.

130-4 BASIC I
Programming elements of BASIC language; techniques for debugging and interpreting computer output; linkage to subroutines and overlays; file-structure involving sequential access; case studies with business applications. 3 hours lecture, 2 hours lab. Prerequisite: TAD 103 or permission of instructor.

145-4 Small Computer Systems and Terminals
Operation and programming of a microcomputer (or minicomputer) with peripherals; programming and use of an interactive terminal. BASIC is the implementation language. 3 hours lecture, 2 hours lab. Prerequisite: TDP 130 or permission of instructor.

221-4 Systems Analysis I
Introduction to fundamental concepts of systems development and design. Topics include basic system concepts, planning, elements of systems, performing systems study, and alternatives in systems design. 3 hours lecture, 2 hours lab. Prerequisite: TDP 122 or equivalent.

222-4 Systems Analysis II
Student must design and implement an information system from a managerial perspective. This includes analysis of present information flow, systems specifications, equipment selection, and system effectiveness. 3 hours lecture, 2 hours lab. Prerequisite: TDP 221 or equivalent.

230-5 Computer Applications in Business Decisions
Application of management decision tools to selected business problems using computer for development of solutions from design through execution. A project management approach is used. 4 hours lecture, 2 hours lab. Prerequisite: TDP 222 or equivalent.

241-4, 242-4 Introduction to Programming with FORTRAN
Introduction to use of computers as problem-solving tool. Examples from and applications to broad range of problems. FORTRAN is the current implementation language used. 3 hours lecture, 2 hours lab. Prerequisite: for 242, TDP 241.

252-4 Introduction to Assembly Language
Computer and program structure, machine and assembly language. Analysis of numerical and nonnumerical problems. 3 hours lecture, 2 hours lab. Prerequisite: TDP 121, 122; or TDP 241, 242; or equivalent; or permission of instructor.

261-4 Fundamentals of RPG Programming I
Designed to acquaint student with an extensively used computer programming language for small- and medium-sized computer systems. Emphasis placed on report preparation and file organization. 3 hours lecture, 2 hours lab. Prerequisite: TDP 121.

262-4 Fundamentals of RPG Programming II
Designed to give student specific competency in using advanced programming techniques in RPG programming language. Emphasis placed on table lookup procedures and file handling techniques. 3 hours lecture, 2 hours lab. Prerequisite: TDP 261.

270-5 Current Applications in Data Processing
Introduction to the latest developments in the electronic data processing field. Topics include techniques of data management, database design, communications controls, and disc operating systems. 4 hours lecture, 2 hours lab. Prerequisite: TDP 222.

295-1 to 3 Independent Study
Directed study on selected topics. May be taken for letter grade or pass/unsatisfactory. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.

297-1 to 4 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of data processing. May be taken for letter grade or pass/unsatisfactory. May be repeated with different titles.

299-4 Internship
Practical data processing experience for qualified students under joint planning and coordination of faculty, student, and business representative. May be taken for letter grade or pass/unsatisfactory.

Technical Engineering/TEG

125-3 Beginning Architectural Design
Contemporary architecture, urban planning, landscape architecture, interior design, flow diagrams, and preliminary presentations. 1 hour lecture, 4 hours lab.

141-3 Development of Engineering and Technology
History and concepts of machine design and relations between machines and culture. Emphasis on dependence of a complex
culture on the machines that serve it. Relations between engineering and science explored in several subject areas. Several field trips included.

145-3 Engineering Drawing I
Use of drafting instruments, lettering, types of lines, freehand sketching, dimensioning, orthographic projections, visualization.

146-3 Engineering Drawing II
Working drawings, including sectioning, isometrics, assemblies, specifications, and material lists. Prerequisite: TEG 145.

147-3 Engineering Drawing III
Working drawings, including details, tolerances, specifications, developing complete sets of working drawings. Prerequisite: TEG 146.

148-3 Electronic Drawing
Drafting course for students in electronics technology. Topics covered are preparation of electrical drawings including block and ladder diagrams, pictorial and schematic wiring diagrams, and printed circuit layouts. Stresses use of electrical and electronic symbols and nomenclature. 1 hour lecture, 4 hours lab.

150-3 Tool and Manufacturing Processes I
Student uses a number of measuring instruments and the engine lathe, and learns processes of knurling, facing, turning, center drilling, and taper turning. 1 hour lecture, 4 hours lab. Prerequisite: MTH 102 or equivalent.

151-3 Tool and Manufacturing Processes II
Provides experience with milling operations and more experience with lathe operations. Students use milling machines, a surface grinder, and shadow gauge. 1 hour lecture, 4 hours lab. Prerequisite: TEG 150.

152-3 Tool and Manufacturing Processes III
A continuation of the study of process manufacturing operations. Students spend the major amount of course time developing numerical control (N/C) tapes for actual operations on three-axis N/C equipment. 1 hour lecture, 4 hours lab. Prerequisite: TEG 151.

153-3 Tool and Manufacturing Processes IV
Designed to apply the knowledge acquired in the previous tool and manufacturing processes courses to the planning and layout of jigs and fixtures. The complete processing of sample parts is part of the study. Training exercises are given that relate to the sample parts. The student is to determine when a certain type of jig and fixture is necessary and what factors are involved in the application and function of the tool. 1 hour lecture, 4 hours lab. Prerequisite: TEG 152.

160-4 Circuit Analysis I
Analysis of circuits containing series and/or parallel connection of DC, AC, and square wave generators with resistive loads. Circuit analysis methods include Ohm's Law, Kirchhoff's Laws, and network theorems. Laboratory activity includes verification of circuit analysis methods by construction and electrical measurement. 2 hours lecture, 4 hours lab.

161-4 Circuit Analysis II
Topics covered include h-parameters, characteristics and properties of inductance and capacitance, and the transformer. Circuits analyzed are those containing series and/or parallel connection of DC and AC generators with resistive, inductive, and capacitive loads. Laboratory activity includes verification of circuit analysis methods by circuit construction and electrical measurement. 2 hours lecture, 4 hours lab. Prerequisite: TEG 160, TMT 114.

162-4 Circuit Analysis III
Topics covered include AC network theorems, bridge, circuits, resonant circuits, and power in single and polyphase circuits with balanced and unbalanced loads. Laboratory activity includes verification of circuit analysis methods by circuit construction and electrical measurement. 2 hours lecture, 4 hours lab. Prerequisite: TEG 161, TMT 115.

170-3 Computer Graphics
Introduction to current means of generating graphic designs with computers. Lab time includes dimensioning, orthographic projections, sectioning, pictorials, and working drawings created with the computer. 1 hour lecture, 4 hours lab. Prerequisite: TEG 216.

200-4 Electronic Communication
Operation, maintenance, troubleshooting, and adjustment of power supplies, audio and radio frequency amplifiers, audio and radio frequency oscillators are studied as individual units and as a complete operating system. 2 hours lecture, 4 hours lab. Prerequisite: TEG 162.

201-4 Engineering Mechanics I: Statics
Forces, resultants, components, moments; equilibrium of particles and rigid bodies; analysis of structures; centroids and moments of inertia. Prerequisite: TMT 115, TPH 111.

202-4 Engineering Mechanics II: Dynamics
Motion of particles and rigid bodies; displacement, velocity, acceleration, force, and mass; torque, mass moments of inertia, rotation; work-energy relation for particles and rigid bodies. Prerequisite: TEG 201.
203-4 Strength of Materials
Axial stress and strain, shear stress and strain, torsion of circular shafts, combined stresses; shear and bending moment diagrams; deflection of beams and columns; modes of failure. 3 hours lecture, 2 hours lab. Prerequisite: TEG 201.

204-3 Machine Design
Principles of mechanics and strength of materials as applied to components of mechanisms, power trains, beams, and other bodies under static load. Material selection, fasteners, belt, chain, and gear drives; design of castings, weldments, jogs, and fixtures. 2 hours lecture, 2 hours lab. Prerequisite: TEG 145, 212, TPH 111.

205-3 Design Analysis
Design as a process; engineering graphics and digital computers as tools for problem solution. Application of the design analysis method to problems involving industry. 1 hour lecture, 4 hours lab. Recommended preparation: TEG 204. Prerequisite: TEG 145, TMT 114.

206-3 Control Systems
A general study of the principles of variance to be controlled; energy transfers; mechanical, electrical, hydraulic, and pneumatic control systems.

207-4 Basic Electricity
Application of Ohm’s and Kirchoff’s laws to series, parallel, and series-parallel circuits. Network theorems, maximum power transfer, magnetism, and alternating current fundamentals. 2 hours lecture, 4 hours lab.

208-4 Fluid Mechanics
Basic study of hydraulics and pneumatics. Applications of fluid mechanics, including pressure, density, and viscosity in design circuits and systems. 3 hours lecture, 2 hours lab.

210-4 Electronics I
Study of the application of semiconductor devices in simple and complex circuits. Topics include small-signal and power amplifiers, feedback and frequency response. 2 hours lecture, 4 hours lab. Prerequisite: TEG 148, 161.

212-3 Materials and Processes
Metallic, organic, and inorganic substances. Study of the characteristics and fabrication of such substances, testing procedures, and interpretation of data. Several industrial field trips. 2 hours lecture, 2 hours lab.

213-3 Water and Sewage Treatment
Procedures and tests of water for municipal water supplies. Sampling and testing surface and subsurface water. Tests and controls of sewage plant influent and effluent. 2 hours lecture, 3 hours lab.

214-3 Air and Water Standards
A review of manuals and other publications used to determine environmental parameters. Specific attention is given to standard manuals which present standardized methods of water and air quality determination.

215-4 Air Pollution Measurement and Treatment
An introduction to methods of quantitatively determining air quality. Includes an introduction to procedures, equipment, and materials used to determine air pollutants produced by industry, and review of laws and standards pertaining to air quality.

216-3 Solid Wastes Management
An introduction to the methods and procedures involved in collection, processing, and recycling of solid wastes. Course includes extended field experiences at selected solid waste processing facilities.

217-3 Specification Writing
Preparation of bidding and contract documents. Language form, specification order, office organization and preparation, source material, CSI format, and related sources. Prerequisite: TEG 145, 146, 147, 212.

218-3 Industrial Plant Layout
Planning, estimating, and design of industrial facilities with emphasis on production layout, management, personnel, aesthetics, and the environment. Prerequisite: TEG 147, TMG 201.

219-3 Industrial Safety
Introduces a comprehensive approach to the central factors involved in developing safe practices and conditions. Imparts the ability to set up safety organizations and conduct safety education and training. Gives the ability to recognize the effect of plant layout, mechanical guards, and occupational health hazards on injury rates and accident costs. Imparts the economic and engineering aspects of fire protection, personal protection equipment, industrial waste disposal, and the analysis of a safety program.

220-4 Electronics II
Study of bipolar transistor amplifiers that includes graphical analysis techniques, transistor parameters, equivalent circuits, power amplifiers, frequency effects, feed-back circuits, and special purpose amplifiers. Theory supported by laboratory experiments. 2 hours lecture, 4 hours lab. Prerequisite: TEG 210.

222-3 Manufacturing Processes
Study of processes in manufacturing and how they relate to the design of machines and machine elements. Basic machine tool operations, welding, casting, and forging. Emphasis placed on machine capabilities. Course supplemented with appropriate field trips. 1 hour lecture, 4 hours lab.
223-3 Basic Tool and Die Making
Theory of cutting and forming metal dies and the concepts of making tools to function properly. Lab experiments help solidify the theory. 2 hours lecture, 2 hours lab. Prerequisite: TEG 151 or permission of instructor.

225-3 Motion and Time Study
Acquaints the student with the basic tools of motion and time study and the part they play in industrial organizations. Imparts a knowledge of the collection of time and motion data and operation analysis, and an ability to relate motion economy, rating techniques, activity charts, and graphical techniques of presentation. Includes evaluation and use of work simplification methods. Prerequisite: TEG 218.

226-3 Metallurgy
Deals with the terminology and designations of materials used in manufacturing and emphasizes the relation between the nature of materials and their properties. The altering of properties for design purposes and methods of comparing and testing materials for selection are covered. 2 hours lecture, 2 hours lab. Prerequisite: CHM 101.

230-4 Electronics III
Advanced laboratory and theoretical study of vacuum tubes, unijunction transistor, tunnel diode, field effect transistor, diac, triac, silicon control rectifier, and integrated circuits. 2 hours lecture, 4 hours lab. Prerequisite: TEG 220.

232-4 Industrial Electronics
Laboratory and theoretical study of transformers, motors, generators, gas tubes, phase shift control, photo-electric control, time delay circuits, static switching, and servomechanisms. Integrates electronics with industrial applications of electricity. 2 hours lecture, 4 hours lab. Prerequisite: TEG 220.

240-4 Digital Logic
Classroom-laboratory study of digital number systems, binary codes, Boolean algebra, logic gates, combinatorial logic, and minimization of logic functions and circuits. Laboratory work consists of design, implementation, and testing of logic combinational circuits using digital trainers and integrated logic circuits. 2 hours lecture, 4 hours lab. Prerequisite: TEG 220.

241-4 Digital Circuits
Continuation of TEG 240, with study of flip-flops, counters, registers, synchronous and asynchronous sequential circuits, encoders, decoders, memory devices, display devices, A/D and D/A converters, data-handling techniques, and computer/microprocessor architecture. Laboratory work consists of design, implementation and testing of logic combinational circuits using integrated logic circuits. 2 hours lecture, 4 hours lab. Prerequisite: TEG 240.

250-4 Operational Procedures and Regulations
An overview study of theory and regulations associated with operation of two-way radio equipment. Covers laws and technical standards as they apply to two-way radio systems. Weekly examinations provide study guides and review of the topics necessary to pass the F.C.C. examination for first-class radiotelephone operator's license. Prerequisite: TEG 220.

251-4 Motor and Generator Design
Advanced classroom-laboratory study of DC and AC motor and generator construction with particular attention to rotor and field windings, commutators and slip rings, insulations, copper, iron, and mechanical losses. Laboratory work entails confirmation of classroom studies through examination and testing of generators. Motors or generators are designed to meet given parameters. 2 hours lecture, 4 hours lab. Prerequisite: TEG 162.

252-4 Transformers and Devices
Study of various devices normally found in conventional electrical systems including transformers, relays, circuit breakers, motor starters, automatic switches and controllers, single-phase and polyphase power rectifiers, servo systems. Laboratory work establishes operational characteristics and uses of devices considered in classroom. 2 hours lecture, 4 hours lab. Prerequisite: TEG 162.

260-4 Welding Processes
Welding processes in joining metals, strength of materials in welded joints, technological developments in the welding industry and welded materials. Laboratory involves field trips and introduction to gas, arc, TIG, MIG, and resistance welding equipment. 2 hours lecture, 4 hours lab.

261-4 Welding Processes: Advanced
Advanced course in the use of flux core, submerged arc, arc-gouging, and out-of-position welding. Cost effectiveness, production methods, maintenance, and design of part joint and holding fixtures are covered. 2 hours lecture, 4 hours lab. Prerequisite: TEG 260.

295-1 to 3 Independent Study
Directed studies on selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.
Technical English/TEN

101-1 Reading Improvement
Intensive individual work in reading skills, specifically vocabulary development and reading comprehension. May be taken for letter grade or pass/unsatisfactory.

105-3 Basic Writing
(Listed jointly with Developmental Education; see SS 009.) Helps students develop and improve writing skills. Subject areas include grammar, sentence structure, and paragraph development. Cannot be applied toward graduation.

110-3 Service Communications
Focus on customer-service related communication, both oral and written. Special attention to descriptive service-related writing: preparing invoices, statements, receipts; process description, work orders; explanatory/direction-giving communication skills. Letters of application, personal data sheets. Prerequisite: TEN 105 or equivalent.

115-3 Secretarial Business Writing
Study of terminology and formats used in business communication: letters, reports, memos, dictation, refining the fundamentals of grammar, sentence construction, punctuation rules, spelling. Prerequisite: ENG 111.

116-3 Business Writing
Techniques in business writing with special attention given to improving mechanical skills, reviewing forms of business writing, and analyzing business and technical prose. Prerequisite: ENG 112.

117-3 Public Communications
Designed to help students learn to prepare print media, structure and organize news stories, plan layouts, choose photographs for publication, and operate office and graphic equipment. Prerequisite: ENG 112.

118-3 Technical Writing
Writing for the technical/engineering world. Includes the writing of reports, instructions, and proposals. Provides an overview of letters and resumes. Prerequisite: ENG 111.

Technical Finance/TFI

205-3 Business Finance
Emphasis on financial structure of a monetary and credit system; monetary and credit policies, and the demands for funds in the business sector of the economy. Forms of business financing and fundamental concepts of capital budgeting are analyzed. Prerequisite: TAC 203.

221-3 Principles of Insurance
Twelve-topic course that explores the basic principles that underlie the entire field of insurance as well as the nature and operation of the insurance business.

222-3 Property Insurance
Thirteen-topic course that explores the insurance coverages, policy provisions, and concepts of property insurance in both personal and commercial lines. Prerequisite: TFI 221.

223-3 Casualty Insurance
Explores the coverages, policy provisions, and concepts common to liability insurance policies, suretyships, liability insurance aspects of multi-line contracts, health and social insurance coverages. Prerequisite: TFI 221.

231-3 Real Estate Principles and Practices
Basic orientation to the broad field of real estate. Principles, practices, and issues of real estate. The real estate market, types of real property interest, contracts, deeds, financing, home ownership, leases, investment, management, purchasing, selling, role of real estate agent, search, examination, registration of title, title closing, the valuation process, city planning, zoning, public housing, urban renewal, and state regulation. Major issues and trends involving economic, political, and social implications in the field of real estate.

232-3 Real Estate Law
Includes all areas of law commonly concerned with the typical real estate practitioner and investor-consumer. Topics include: the law of agency as applied to real estate brokers and salesmen, law of fixtures, estates (including leases), conveyancing of real estate, real estate managers, zoning, cooperatives, condominiums, and license laws of Ohio. Prerequisite: TFI 231.

233-3 Real Estate Finance
changes. Financial institutions, government operations. Alternative methods for financing income properties. Successful completion of this course meets part of the licensing requirements for real estate broker in Ohio. Prerequisite: TFI 231.

234-3 Real Estate Valuation and Appraisal
The purpose of appraisal and the concept of value. Factors influencing value. Determination of economic value through capitalization of future cash flows. Methodology for determining the capitalization rate, and use of compound interest tables. Market conditions. Replacement cost, depreciation, and land value. Successful completion of this course meets part of the licensing requirement for real estate broker in Ohio. Prerequisite: TFI 231.

235-3 Real Estate Brokerage
Real estate practices and management of property from the brokerage office manager's perspective. Managerial, financial, marketing, and legal aspects of real estate brokerage covered in depth. Prerequisite: TFI 231, 232.

236-3 Seminar in Selected Real Estate Topics
Various topics to be covered depending upon demand and instructor's objectives. Prerequisite: TFI 233, 234, or equivalent; or permission of instructor.

240-3 Money and Banking
Analysis of behavior and significance of money, credit, debt, and the banking system.

295-1 to 3 Independent Study
Directed study on selected topics. May be taken for letter grade or pass/unsatisfactory. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.

297-1 to 5 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of finance. May be taken as often as topics vary.

299-4 Internship
Practical business experience in finance for a qualified student under the planning and coordination of faculty, student, and business representative. Completion of sixty credit hours required.

Technical Management/TMG

201-3 Fundamentals of Management
Basic fundamentals of the process of management applied to business organizations. Emphasis is placed on the practical applications of techniques employed by managers at lower and middle organizational levels. Prerequisite: ADM 101.

202-3 Labor Relations
Consideration of the practices, principles, and organization of collective bargaining. Study of the techniques of mediation and the agencies involved in mediation. Causes and cures of labor disputes. Prerequisite: TMG 201 or 210.

210-3 Personnel Management
Study of the characteristics, purposes, objectives, and techniques of supervision and coordination of the work of others. Discussions include employment interviewing, training procedures, supervision and improvement of human relations. Prerequisite: TMG 201.

240-3 Wage and Salary Administration
Analysis of job evaluation for salary and hourly positions, job designs, compensation structures, and fringe benefit and retirement fund administration. Prerequisite: TMG 201 or 210.

245-3 Industrial Relations
Examines manufacturing staffing policies, reviewing job information developments and job analysis processes, evaluating recruitment programs, developing selection, interviewing and testing techniques, establishing personnel policies, and evaluating EEO program requirements. Prerequisite: TMG 201 or 210.

250-3 Purchasing
Composition of a purchasing office, buying the right quality from the right vendor, buying to support inventory control, "make versus buy" philosophy, and some legal aspects of buying. Prerequisite: TMK 202 or TMG 201.

270-3 Production Management
Introduction to the functions making up the production system, including product parts manufacture, process routing, quality standards, work measurement, work methods, scheduling, and inventory control. Prerequisite: TMG 201.

280-3 Small Business Management
Stresses business management functions important to small businesses, including single ownership, partnership and incorporation, capitalization and financing requirements, legal requirements, production and marketing arrangements. Prerequisite: TMG 201 or 210.

290-4 Comprehensive Management
Final course designed to integrate the student's two-year program into a cohesive program and to promote management problem-solving capabilities. Prerequisite: TMG 202, TMK 202, or permission of instructor.

295-1 to 3 Independent Study
Directed studies on selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.
297-1 to 5 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of management. May be taken for letter grade or pass/unsatisfactory. May be repeated with different titles.

299-4 Internship
Practical business experience in management for a qualified student under the joint planning and coordination of faculty, student, and business representative.

Technical Marketing/TMK
201-3 Basic Marketing I
Study of the functions of marketing in the American business system with emphasis on economic and social determinants. Prerequisite: EC 201, TMT 110, 111.

202-3 Basic Marketing II
Practical evaluation of marketing functions relative to product development, promotion, pricing, distribution, and establishing market objectives. Prerequisite: TMK 201.

210-3 Promotion
Use of personal selling, sales promotion, and advertising techniques. Prerequisite: TMK 201.

220-3 Retailing
Study of the marketing functions at the retail level. Emphasis on institutional practices at various types of retail establishments. Prerequisite: TMG 201; TMT 110, 111.

228-3 Retail Management
Concentrates on merchandise management and retail control. Includes application of buying procedures and analysis of current merchandising policies. Prerequisite: TMK 202, 220.

230-3 Physical Distribution
Study of the physical transportation facilities and alternative channels of distribution. Prerequisite: TMK 201.

240-3 Salesmanship and Sales Supervision
Analysis of personal skills essential to successful selling. The personal characteristics and merchandising knowledge necessary for customer development are discussed. Mass and personalized methods of sales supervision are considered. Prerequisite: TMK 201 or permission of instructor.

260-3 Marketing Research
Study and performance of real or simulated marketing research problems with special emphasis on practical applications. Permission of instructor required.

290-4 Comprehensive Marketing
Final course designed to integrate the student’s two-year program into a cohesive marketing program and to promote marketing problem-solving capabilities. Prerequisite: TMK 202, TMG 202 or 210; or permission of instructor.

295-1 to 3 Independent Study
Directed studies on selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.

297-1 to 5 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of marketing. May be taken for letter grade or pass/unsatisfactory. May be repeated with different titles.

299-4 Internship
Practical business experience in retail marketing for a qualified student under the joint planning and coordination of faculty, student, and business representative.

Technical Mathematics/TMT
102-3 Basic Technical Mathematics
Sets, counting numbers, integers, rational numbers, equations in two variables, polynomials, factoring, fractional and quadratic equations. Math placement test required for enrollment.

110-3, 111-3 Managerial Mathematics I, II
Basic theory of mathematics needed to understand problems in commercial mathematics. Rapid calculation methods and work-saving devices for computing installment payments, simple and compound interest, annuities, depreciation, and investment. Development and use of graphs. Prerequisite: for 110, MTH 102 or equivalent; for 111, TMT 110.

113-4 Technical Mathematics I
Course includes an introduction to the trigonometric relations, vectors, graphs of trigonometric functions, exponents, radicals and determinates.

114-4 Technical Mathematics II
Course includes work with analytic geometry, logarithmic functions, solving equations, some theory of equations, inequalities, properties of the trigonometric function, inverse trigonometric functions. Prerequisite: TMT 113.

115-4 Technical Mathematics III
Topics covered are variations, progressions, properties of the trigonometric functions, inverse trigonometric functions, analytical geometry. Prerequisite: TMT 114.
Technical Mathematics IV
Introduces topics of calculus such as derivative and applications, integration and applications, differentiation of transcendental functions, methods of integration, and expansion of functions in series. Prerequisite: TMT 115.

138-4, 139-4 Applied Technical Mathematics
An introduction to the techniques and fundamentals of calculus. Study of limits, the derivative, the definite integral, infinite series, and differential equations, with emphasis on applications.

Technical Office Administration/TOA

201-4 Beginning Shorthand
Development of a vocabulary in either Gregg Diamond Jubilee or Century 21 series shorthand.

202-4 Intermediate Shorthand
Continued vocabulary development in shorthand. Emphasis on dictation and ability to transcribe accurately. Prerequisite: TOA 201 or one year of high school instruction in shorthand; TOA 211 or equivalent.

203-4 Advanced Shorthand
Emphasis on dictation and speed building in shorthand. Introduction to transcription. Prerequisite: TOA 202 or two years of high school instruction in shorthand.

211-3 Beginning Typewriting
Mastery of basic skills in touch typewriting: typing of letters, reports, short tabulations, themes. Open to any student with less than one year of high school instruction in typewriting or equivalent.

212-3 Intermediate Typewriting
Development of speed and accuracy; introduction to production typewriting of letters, reports, tabulations, and manuscripts. Prerequisite: one year of high school instruction in typewriting or TOA 211.

213-3 Advanced Typewriting
Further development of speed and accuracy; emphasis on letters, reports, forms, tabulation problems, and manuscripts in executive, medical, or legal specialized area. Prerequisite: TOA 212.

221-3 Secretarial Procedures I
Final course integrating the development of operational functions and decision-making competencies. Simulations in executive, medical, and legal procedures including experiences in telephone and communication techniques, word processing, and administrative services.

222-3 Secretarial Procedures II
Continuation of TOA 221.

230-3 Records Management
College-level course in filing systems and procedures. Combines technical aspects of records technique with sound principles of management.

231-3 Office Management
Office organization; emphasis on work flow, proper equipment, problems in supervision, human relations, and management techniques.

232-4 Word Processing
Introductory course in automated word processing equipment and systems. Prerequisite: TOA 212 or permission of instructor.

233-3 Machine Transcription
Executive, medical, or legal transcription from belts, tapes, and cassettes, emphasizing skills needed in today's word processing environment. Prerequisite: TOA 213, 232, or permission of instructor.

235-3 Office Machines I
Operation of electronic printing and electronic display calculators.

237-3 Office Machines II
Introduction to duplicating equipment and processes: copier, spirit, mimeograph, and offset.

240-3 Data Entry
Acquaints students with the technical data and machines used in entering data in a form that can be used by data processing equipment in typical office situations. Prerequisite: TOA 213 or permission of instructor.

250-4 Executive Transcription and Terminology
Introduction to typewritten transcription from shorthand dictation of executive material. Prerequisite: TOA 203, 212. (Previously listed as TOA 234.)

251-4 Legal Terminology and Transcription
Introduction to typewritten transcription from shorthand dictation of legal materials. Prerequisite: TOA 203, 212. (Previously listed as TOA 238.)

252-4 Medical Terminology and Transcription
Introduction to typewritten transcription from shorthand dictation of medical materials. Prerequisite: TOA 203, 212. (Previously listed as TOA 239.)

295-1 to 3 Independent Study
Directed studies in selected topics. May be repeated to a maximum of four credit hours. Sophomore standing and permission of instructor required.
Technical Physics/TPH

111-4 Mechanics
The principles of physics taught with emphasis on technical applications, including fundamental phenomena and laws of physics. Newton's laws, forces, torques, equilibrium, motion, work, energy. 3 hours lecture, 2 hours lab. Prerequisite: TMT 113.

112-4 Heat, Light, and Sound
Temperature and effects of heat, heat and change of state, heat transfer, simple harmonic motion, sound waves, nature of light and illumination, reflection, refraction, dispersion, and optical instruments. 3 hours lecture, 2 hours lab. Prerequisite: TPH 111.

Technical Psychology/TPS

204-3 Industrial and Organizational Psychology
Scientific psychological principles, procedures, and methods applied to human behavior in industrial organizations. Prerequisite: PSY 111 or 112 or permission of instructor.

Technical Quantitative Business Analysis/TQB

210-3, 211-3 Introduction to Statistics I, II
Principles and techniques of collecting, analyzing, presenting, and interpreting quantitative data in business and economics. Emphasis on computer usage.

Technical Sociology/TSO

100-3 Basic Interpersonal Relations
Human relation skills in and out of the working environment. Included is a study of customer relations, employee interpersonal relations, tensions, and other job conflicts.

Water Well Technology/TWW

100-1 Orientation to Water Well/Groundwater Industry
Introduction to basic functions of the various groups within the water well industry. Operational aspects of water well planning/design, well construction, pumping system design and installation, water quality assessment, well servicing, and equipment and material manufacture and distribution.

101-3 Water Well Drilling I
Introduction to the operation of a rotary drilling machine with emphasis on job safety. Includes the actual construction of water wells in unconsolidated materials. 1 hour lecture, 4 hours lab.

102-3 Water Well Drilling II
Continued instruction in operation of a rotary drilling machine with emphasis on job safety, proper use of drilling fluids, auger drilling, and the mechanics of pneumatic and hydraulic systems on the rig. 1 hour lecture, 4 hours lab. Prerequisite: TWW 101.

103-3 Water Well Drilling III
Continued instruction in operation of a rotary drilling machine with emphasis on job safety, auger drilling, proper use of drilling fluids, and rig maintenance. 1 hour lecture, 4 hours lab. Prerequisite: TWW 102.

105-3 Introduction to Groundwater I
Introduction to the occurrence, movement, and quality of groundwater in the saturated zone. Examines basic physical laws which affect groundwater.

106-3 Introduction to Groundwater II
Further examination of movement and quality of groundwater. Aquifer evaluation by test pumping, groundwater exploration methods, and movement of groundwater pollution. Prerequisite: TWW 105.

107-3 Water Well Design I
An examination of factors, both subsurface environmental and fabricated material related, which dictate the structural design of water wells. Analysis of aquifer material, well development, and screen sizing are stressed. 1 hour lecture, 4 hours lab.

108-3 Water Well Design II
An examination of design criteria and installation methods for large diameter and special purpose water wells. Prerequisite: TWW 107.

201-3 Water Systems Planning I
The elements of proper design, selection, and installation of water delivery systems. Pump selection/installation, water control, piping systems, hydropneumatic tank selection, installation of water conditioning, contaminant removal, and disinfection systems are examined.
202-3 Water Systems Planning II
High capacity pumping system planning and installation methods are examined in component order. Vertical lineshaft turbine and high capacity submersible pumps are considered exclusively in this course. Prerequisite: TWW 201.

210-3 Water Well System Installation
Selecting and installing actual water well delivery systems for given sites and conditions. System components are examined according to their function in the system. 1 hour lecture, 4 hours lab. Prerequisite: TWW 201.

211-3 Water Well Maintenance
Survey of the mechanisms which cause structural deterioration in water wells and pumping systems as well as maintenance procedures used to correct the problems.

212-3 Thermoplastic Pipe Fabrication
Fabrication of thermoplastic pipe for use in water well application. Selection, solvent cementing, and installation of thermoplastic pipe are stressed.

297-1 to 3 Studies in Selected Topics
Course of variable content dealing with problems, approaches, and topics in the field of water well technology. May be taken for letter grade or pass/unsatisfactory. May be repeated with different titles.

299-1 to 5 Water Well Technology Internship
Practical training in all phases of water well construction for a qualified student under the joint planning of faculty, student, and active water well contracting firms. Completion of sixty credit hours of course work required.
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Faculty

Ackerly, Gary D. Adjunct Assistant Professor of Education and Professional Psychology; B.A., 1971, M.Ed., 1973, Ph.D., 1977, University of Missouri

Adams, Robert W. Associate Professor of Political Science; B.A., 1955, Utica College; M.A., 1961, Syracuse University; Ph.D., 1969, Ohio State University

Ahmad, Khurshid Associate Professor of Insurance and Real Estate; B.A., 1953, University of Karachi (Pakistan); M.A., 1955, Punjab University (India); Ph.D., 1970, University of Pennsylvania

Albanese, Catherine L. Professor of Religion; B.A., 1962, Chestnut Hill College; M.A., 1968, Duquesne University; M.A., 1970, Ph.D., 1972, University of Chicago Divinity School

Allen, Arnold Professor of Psychology and Department Chair; B.S., 1940, University of Cincinnati; M.D., 1943, Cincinnati Medical College; certified in psychoanalysis, 1962, Chicago Institute for Psychoanalysis

Alter, Gerald M. Assistant Professor of Biological Chemistry; B.A., 1968, Albion College; Ph.D., 1975, Washington State University

Amos, Oris E. Professor of Education, Coordinator of Special Education; B.A., 1951, Virginia State College; M.A., 1963, Ph.D., 1971, Ohio State University

Anderson, Beverlee B. Associate Professor of Marketing and Department Chair; B.S., 1960, B.S., 1966, M.B.A., 1970, Ph.D., 1972, Ohio State University

Andrews, Henry B., Jr. Associate Professor of Education, Director of Human Services and Allied Health; B.S., 1966, Ed.D., 1970, University of Tennessee

Andrews, Merrill L. Associate Professor of Physics; B.A., 1960, Cornell University; Ph.D., 1967, Massachusetts Institute of Technology

Anon, Norman Professor of Economics; B.A., 1948, M.S., 1951, Ph.D., 1954, University of Wisconsin

Arbagn, Martin Assistant Professor of History; B.A., 1961, Georgetown University; M.A., 1967, Ph.D., 1969, Rutgers University at New Brunswick

Arlan, Larry G. Professor of Biological Sciences and Physiology; B.S., 1966, M.S., 1968, Colorado State University; Ph.D., 1972, Ohio State University

Atsals, Theodore N. Associate Professor of Music; B.Mus., 1960, M.Mus., 1962, Miami University; D.M.A., 1973, Cincinnati College-Conservatory of Music

Ausch, William I. Associate Professor of Geological Sciences; B.S., 1974, University of Illinois; M.A., 1976, Ph.D., 1978, Indiana University


Bajpai, Prapulla K. Adjunct Professor of Physiology; BSc 1, 1954, Allahabad (India); B.V.Sc., 1968, UP College of Veterinary Medicine, M.V.Sc., 1960, PG College of Animal Sciences; M.S., Ph.D., 1965, Ohio State University

Baker, William D. Professor of English; B.A., 1946, Hobart College, M.A., 1948, University of Chicago; Ph.D., 1950, Northwestern University

Bakr, Adel H. Assistant Professor of Hydrology; B.S., 1963, University of Assiut (Egypt); M.S., 1971, University of Alberta at Edmonton; Ph.D., 1976, New Mexico Institute of Mining and Technology

Ballantine, Jeanne Professor of Sociology; B.S., 1963, Ohio State University; M.A., 1966, Columbia University; Ph.D., 1971, Indiana University

Bambakides, Gust Assistant Professor of Physics; B.S., 1958, University of Akron; M.S., 1963, Ph.D., 1966, Case Western Reserve University

Barbour, Clyde D. Associate Professor of Biological Sciences; B.A., 1958, Stanford University; Ph.D., 1966, Tulane University of Louisiana

Barlow, Gary C. Professor of Art Therapy and Art Education; Coordinator, Art Therapy; B.S., 1957, M.Ed., 1958, Miami University; Ed.D., 1967, Pennsylvania State University

Barnes, H. Verdain Professor of Medicine and Department Chair; Professor of Pediatrics; B.A., 1958, McMurry College; B.D., 1961, Yale University; M.D., 1965, Vanderbilt University School of Medicine

Barr, David L. Associate Professor of Religion and Department Chair; B.S., 1965, Fort Wayne Bible College; M.A., 1969, Ph.D., 1974, Florida State University

Barr, Steven A. Voluntary Assistant Professor of Physiology; B.S., 1968, Ohio State University; M.S., 1972, Wright State University; Ph.D., 1980, Ohio State University

Bartlett-Blair, Deborah B. Assistant Professor of Theatre Arts; B.A., 1973, State University of New York at Stony Brook; B.F.A., 1976, University of Minnesota

Bartley, C. Murray Associate Professor of Anatomy; B.A., 1971, University of Maine; M.S., 1975, Ph.D., 1978, Bowman Gray School of Medicine of Wake Forest University

Barton, John C. Adjunct Associate Professor of Education; Associate Professor and Vice-Chair of Postgraduate Medicine and Continuing Education; Dean, College of Continuing and Community Education; Director, Group in Continuing Medical Education; B.S., 1957, M.A., 1960, Ph.D., 1971, Ohio State University

Bassett, Abe J. Professor of Theatre Arts and Department Chair; B.A., 1952, Bowling Green State University; M.A., 1957, Ph.D., 1962, Ohio State University

Batra, Prem P. Professor of Biological Chemistry; B.S., 1956, M.S., 1958, Punjab University (India); Ph.D., 1958, University of Arizona

Battino, Rubin Professor of Chemistry; B.S., 1953, Community College of New York; M.A., 1954, Ph.D., 1957, Duke University

Becker, Carl Professor of History; B.A., 1949, Otterbein College; M.A., 1950, University of Wisconsin; Ph.D., 1971, University of Cincinnati

Beellick, Donald J. Assistant Professor of Philosophy; B.A., 1963, Western Michigan University; M.A., 1967, Ph.D., 1972, Ohio State University

Beljan, John R. Professor of Surgery and Engineering, Provost and Senior Vice-President; B.S., 1951, M.D., 1954, University of Michigan

Bell, Brian Music Associate; B.M., 1979, Eastman School of Music

Belitz, Jessica Assistant Professor of Theatre Arts; B.A., 1978, Indiana University; M.F.A., 1981, Brandeis University

Benner, Carl V. Professor of Education; B.A., 1957, Rio Grande College; M.A., 1963, University of Northern Iowa; M.S., 1960, Purdue University; Ed.D., 1965, Bowling Green State University; Ph.D., 1970, Ohio State University

Bernhardt, Gregory R. Assistant Professor of Education; B.A., 1971, Colorado State University; M.S., 1973, Kansas State Teachers College; Ed.D., 1979, University of Northern Colorado

Berry, Charles R. Professor of History; B.A., 1954, George Washington University; M.A., 1963, Ph.D., 1967, University of Texas at Austin
Bertoline, Gary R. Instructor in Mechanical Drafting and Design Technology, WOBC. B.S., 1974, Northern Michigan University; M.Ed., 1979, Miami University
Bethke, Richard J. Associate Professor of Engineering and Computer Engineering B.S.M.E., 1965, Ph.D., 1970, University of Wisconsin
Bigley, Nancy J. Professor of Microbiology and Immunology and Department Chair and Program Director. B.S., 1953, Pennsylvania State University; M.S., 1955, Ph.D., 1957, Ohio State University
Bitzko, Joseph Director of Chemical Laboratories. B.S., 1949. M.S., 1950, University of Pittsburgh
Blair, John P. Professor of Economics and Department Chair. B.S., 1969, M.A., 1970, Eastern Illinois University; Ph.D., 1974, West Virginia University
Blake, Charles H., Jr. Associate Professor of Economics. B.S., 1949. Linfield College; M.S., 1953, Ph.D., 1966, University of Wisconsin
Bland, Leland D. Associate Professor of Music. B.S., 1962, M.A., 1965, Northeast Missouri State University; Ph.D., 1973, University of Iowa
Bogan, Barbara Assistant Professor of Nursing. B.S.N., 1962, M.S., 1965, Ohio State University
Boggs, Patricia S. Assistant Professor of Management Science. M.A., 1976, Kent State University
Bogner, Bela J. Associate Professor of Social Work, and Medicine in Society B.S., 1962, Ecole Sociale de Louvain (Belgium); M.S.W., 1966, University of Wisconsin at Milwaukee; Ph.D., 1974, University of Wisconsin at Madison
Bowers, Dixie Music Associate B.M., 1955, Conservatory of Music, Cincinnati; M.M., 1956, University of Cincinnati College-Conservatory of Music
Bracher, Peter S. Professor of English. B.A., 1954, Wittenberg University; M.A., 1956, University of Washington; Ph.D., 1966, University of Pennsylvania
Brandeberry, James E. Associate Professor of Computer Science, Engineering, and Computer Engineering. B.S.E.E., 1961, M.S.E.E., 1963, University of Toledo; Ph.D., 1969, Marquette University
Brecha, Sonja A. Assistant Professor of Accountancy B.S., 1956, Ohio State University; M.S., 1974, Kent State University
Britton, Robert G. Professor of Theatre Arts. B.A., 1960, Pfeiffer College; M.A., 1960, University of Mississippi; Ph.D., 1969, Florida State University
Brown, Herbert E. Professor of Marketing. B.S., 1961, M.S., 1962, Southern Illinois University; Ph.D., 1969, Ohio State University
Brown, William E. Associate Professor of Education B.S., 1962, M.A., 1964, Ball State University; Ph.D., 1969, Indiana University
Bruce, Timothy Assistant Professor of Art Diploma, 1974, North East London Polytechnic; M.A., 1979, Royal College of Art (England)
Burd, Arthur H. Instructor in Engineering Technology. WOBC
Burt, Wayne R. Assistant Professor of Microbiology and Immunology. B.A., 1968, University of Utah; M.S., 1971, Ph.D., 1973, University of Iowa
Burte, Harris M. Adjunct Professor of Engineering. B.S., 1946, New York University; M.S., 1947, Massachusetts Institute of Technology; Ph.D., 1950, Princeton University
Byrum-Gaw, Beverly A. Associate Professor of Communication. B.A., 1964, M.A., 1967, Miami University; Ph.D., 1974, Ohio State University
Call, Edward P. Voluntary Associate Professor of Anatomy. Associate Clinical Professor of Surgery. B.A., 1955, Dartmouth College; M.D., 1959, Yale University
School of Medicine
Campbell, C. Edward Assistant Professor of Accountancy. B.A., B.S., 1967, University of Tulsa, M.A., 1969, University of Missouri
Campbell, Patrick E. Associate Professor of Psychology. B.S., 1960, M.S., 1966, Kansas State College; Ph.D., 1968, University of Kansas
Cannon, Emilie T. Assistant Professor of Spanish. B.A., 1959, University of North Carolina at Greensboro; M.A., 1963, Tulane University; Ph.D., 1972, Ohio State University
Cantelupe, Eugene B. University Professor of English, and Art History. B.A., 1942, State University of New York at Buffalo; M.F.A., 1950, University of Iowa; Ph.D., 1959, Washington University
Carmichael, Wayne Associate Professor of Biological Sciences. B.S., 1969, Oregon State University, M.S., 1972, Ph.D., 1974, University of Alberta
Carraher, Charles E., Jr. Professor of Chemistry and Department Chair. B.A., 1963, Sterling College; Ph.D., 1967, University of Missouri at Kansas City
Carroll, Margaret C. Adjunct Assistant Professor of Medical Technology. B.S., 1945, M.T., 1946, University of Dayton; M.A., 1975, Central Michigan University
Carson, Howard V. Instructor in Computer Science. B.S., 1972, M.S., 1974, Wright State University; M.S., 1978, Virginia Polytechnic Institute and State University
Carusone, Peter S. Professor of Marketing. B.A., 1962, University of Cincinnati; M.B.A., 1965, Xavier University; Ph.D., 1969, Ohio State University
Cary, Norman R. Professor of English. B.A., 1958, Ashbury College; M.A., 1960, University of Arkansas; Ph.D., 1968, Wayne State University
Castellano, Joseph F. Professor of Accountancy. Dean of the College of Business and Administration. B.S., 1964, M.S., 1965, Ph.D., 1971, St. Louis University
Chance, Larry L. Associate Professor of Education. B.A., 1966, M.A., 1967, Ball State University; Ph.D., 1973, University of Kansas
Chiodo, John J. Associate Professor of Education. B.A., 1968, M.A., 1970, San Jose State University; Ph.D., 1974, University of Iowa
Clark, Robert L. Associate Professor of Education. B.S., 1949, Murray State College; M.A., 1954, University of Kentucky; Ph.D., 1965, Southern Illinois University
Cleyar, Michael J. Professor of Management Science. B.S., 1961, Norwich University College; M.A., 1969, Ph.D., 1971, University of Nebraska
Clemens, Jerome M. Assistant Professor of Geography. Program Committee Coordinator, Selected Studies. B.S., 1962, M.A., 1965, Ph.D., 1974, Ohio State University
Cohen, Nadine D. Associate Professor of Biological Chemistry. B.S., 1970, Rensselaer Polytechnic Institute; Ph.D., 1974, University of Rochester
Coleman, Florence S. Clinical Assistant Professor of Medical Technology and Program Director; Adjunct Assistant Professor of Biological Sciences. B.S., 1967, Kent State University; M.P.A., 1975, Golden Gate University
Colle, Herbert A.  Associate Professor of Psychology  
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M.A., 1969, Ed.D., 1972, University of Kentucky  

Constable, Gordon K.  Associate Professor of 
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Assistant Dean, College of Science and Engineering 
B.A., 1945, College of Wooster; M.S., 1948, Ohio State 
University, Ph.D., 1980, The Union Graduate School  

Cook, Pamela P.  Instructor in Computer Science  B.A., 
1965, University of Michigan at Dearborn; M.S., 1979, 
University of Dayton  

Coppage, William E.  Associate Professor of Mathematics  
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Ohio State University  

Correa, Robert M.  Associate Professor of English 
B.A., 1955, Saint Bonaventure University; M.A., 1960, 
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Notice to Students


The following notice is published as a public service for the student body. Federal regulations require annual notice to students on this subject.

Wright State University has for many years regulated access to student records. Federal regulations now apply in this area and are designed to protect the privacy of student records. The statute and regulations govern access to records, their release, and the rights of students to review and, if necessary, challenge information they believe to be inaccurate.

This notice, to be published annually, is a digest of these regulations. The full text is available for student examination in the Office of Student Development, the Office of the Registrar, the Affirmative Action Office, and in most college offices. A more detailed digest of the act may also be found in the Student Handbook.

Under the act, "education records" means, with certain exceptions as listed below, those records, files, documents, or other materials related directly to a student and maintained by any unit of the university. The following categories of information are exempt and are not considered to be "education records": (a) records made by university personnel which are in the sole possession of the maker and are not revealed to any other person; (b) records maintained by campus security; and (c) medical and counseling records used solely for treatment. (Records pertaining to students, which are maintained by university offices, are official records, and as such, remain the property of Wright State University.)

Students may seek access to their records by submitting a written and dated request on forms provided by each office from which information is sought. The head of that unit will make the records available within forty-five days and give students the right to challenge any material contained therein on the basis of it being inaccurate, misleading, or inappropriate. The right to challenge grades does not apply under the act unless the grade was inaccurately recorded. Exceptions to the right to review records by students are as follows: (a) financial records of parents; (b) confidential letters and statements of recommendation made prior to January 1, 1975, and any other recommendations for which the student has voluntarily waived the right to access.

Wright State University does not maintain education records in any one central office. Records are maintained generally in the respective colleges and schools, the Offices of the Registrar, Student Development, Career Planning and
Notice to Students

Placement, Admissions, Financial Aid, University Division, Veterans Affairs, Bursar, Athletics, Health Services, and Handicapped Student Services. Questions concerning the location of individual student records should be directed to the Office of Student Development or the registrar.

With specified exceptions, the university may release information in students’ records to others if: (a) there is written consent from the student specifying the records to be released, the reasons for such release and to whom, and with a copy of the records provided to the student if desired by the student; or (b) such information is furnished to comply with judicial orders upon condition that the university make a reasonable attempt to notify the student in advance of compliance by the university.

Information identified as public information may be released to anyone without the student’s written consent. This includes the student’s name, address, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weights and heights of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student.

A student may request his/her name, address, and telephone number not be included in the public student directory by checking the appropriate box on the quarterly registration form. A student may request that public information, other than directory information, not be made public by signing, during the first week of classes each quarter, a request to withhold information, available in the Office of Student Development. The university will not notify a student’s hometown newspaper of outstanding academic achievement (e.g., if the student is named to the dean’s list) if the student requests either of the above options.

Education records or personally identifiable information other than public information may be released without the written consent of the student to the following only: (a) other university officials who have legitimate educational interests; (b) officials of other schools in which the student intends to enroll, provided the student is informed of the record transfer, receives a copy of the record, if desired, and has an opportunity to challenge the content of the record; (c) authorized representatives of certain federal agencies, and education agencies, or state educational authorities under certain conditions; (d) in connection with a student’s application for, or receipt of, financial aid; (e) state and local officials or authorities to whom information is specifically required to be reported or disclosed pursuant to the Ohio Revised Code adopted prior to November 19, 1974; (f) organizations conducting studies for, or on behalf of, educational agencies or institutions or for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction, if such studies are conducted in such a manner as will not permit the personal identification of students and their parents by persons other than representatives of such organizations and such information will be destroyed when no longer needed for the purpose for which it is conducted; (g) accrediting function; (h) parents of a dependent student as defined in section 152 of the Internal Revenue Code of 1957; (i) in connection with an emergency, appropriate persons may be advised if the knowledge of such information is necessary to protect the health and safety of the student or other persons; (j) in compliance with judicial order or pursuant to lawfully issued subpoena, upon condition a reasonable attempt to notify the student is made in advance of the compliance therewith.