College of Science and Mathematics Annual Report 2005

College of Science and Mathematics, Wright State University

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On the Cover (top to bottom)

Delores Etter, Ph.D., WSU CoSM Alumna
Assistant Secretary of the Navy for Research, Development and Acquisition.

Eugenie Scott, Ph.D., Executive Director of the National Center for Science Education
Distinguished Speaker

Ronald Mallett, Ph.D., Professor of Physics, University of Connecticut
Distinguished Speaker

Marc Porter, Ph.D., Professor of Chemistry at Iowa State University
2005 Outstanding Alumni Award from Wright State College of Science and Mathematics

Steve Higgins, Ph.D., Assistant Professor of Chemistry, Wright State University
2005 President’s Award for Excellence in Early Career Achievement.
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Introduction

The Wright State University (WSU) College of Science and Mathematics (CoSM) continued to build on its strong foundation through making significant gains across a wide range of areas in 2005. This report provides an overview of the accomplishments, initiatives, and events of 2005 within the college. We look back on the year with considerable pride in knowing the faculty, staff, students and administration continue to work daily to advance the mission of the college.

Mission

The College of Science and Mathematics performs and promotes innovative research across disciplines and in collaboration with local, regional and international communities. Faculty enthusiastically cultivate an individualized learning environment designed to inspire lifelong learning and prepare students for success. Prominent researchers embrace the opportunity to work with graduate and undergraduate students, while also exploring ways to share their passion for science and mathematics with young students, thus inspiring a new generation of dynamic scientists and mathematicians.

Last year, our faculty and research associates published 243 papers and books, and presented at over 292 professional meetings and conferences. Our faculty gave invited lectures at numerous universities including Stanford, Case Western Reserve and University of Illinois, Urbana-Champaign. Faculty served on 65 editorial advisory boards.

Student enrollment is growing at a steady pace. In the fall of 2005, we welcomed 1,700 students into our classes, compared to 1,556 in 2004. Our students are strong academically with an overall GPA of 3.0; our student population is also increasingly diverse (61% women; 14% minority).

In addition to the university allocated funding, the college obtained in $11,214,598 in research funding (17% of total university funding $64.4 million) through 158 grants/contracts.
Construction initiatives are moving full steam ahead with Bio III building going up as we speak (web cam address), Brehm renovation underway and Oelman and BIO II plans in the works.

This annual report is a summary of our corporate effectiveness as scientists, mathematicians and educators, and we appreciate your interest in sharing in our success.

Michele G. Wheatly, Ph.D., Dean, CoSM
Accomplishments and Events

Outreach

Exploring Science: The Exploring Science program invites Miami Valley classroom teachers to bring their middle school science students to campus for a day of hands-on science activities. Students participate in a variety of modules offered by WSU faculty, staff, and graduate students, designed to get young students engaged in the fun of science. In 2005, more than 800 students participated in this event and more than half of these students reported on an evaluation that they were more interested in science as a result of this program.

Miami Valley Tech Fest: CoSM faculty, staff and students interacted with over 3000 visitors at the third annual two-day science festival at Sinclair Community College. Attendance at this popular event has grown dramatically every year. Interactive displays and activities showed students, parents and teachers from around the State the excitement of hands-on science at WSU. More information about Tech Fest can be found at this web site http://www.ascdayton.org/TechFest2006/

Trebuchet Competition: This unique event brings several hundred high school students to the Nutter Center for a wild and action-packed day. The Trebuchet Competition requires students to work in teams and to call upon math, physics and engineering principles to design a machine that will accurately hurl a lightweight squash ball at a target. CoSM partnered with the College of Engineering and Computer Science and participated in the planning, funding and administration of this event. A photo gallery from the 2006 event can be found at http://www.wright.edu/cosm/treb/

Take Our Daughters and Sons to Work: The College was instrumental in planning and implementing this university-wide event held in April. Nearly 150 youth came to work with a parent or mentor for the day. CoSM faculty led special sessions for the visitors in Life Sciences, Physics, Chemistry, and Statistics.
Green County Science Day: The first Greene County Science Day was held in February 2006 in the WSU Student Union. The WSU Colleges of Science and Mathematics & Engineering and Computer Science offered this event to provide Greene County students with the opportunity to participate in a local science fair. The event was very successful as evidenced by the numerous comments from parents and students. The Greene County Science Day web site is http://www.wright.edu/cosm/gcsf/.

Science Fair Judges: Over 50 CoSM faculty, staff and students contributed a Saturday in March to serve as judges at the Miami Valley Science and Engineering Fair at Central State University. WSU also contributed special awards to worthy science projects.

Pre-med Forum: This event is for high school students who are interested in a career as a physician, pharmacist or dentist. The forum included presentations by several individuals in the CoSM, the WSU School of Medicine, WSU admissions and others departments. In addition, Wright State pre-med, pre-dental and medical students commented on their experiences and education and answered questions. The second annual event was held on President’s Day in February of 2006 and attracted more than 100 people to campus.

Art/Science: The Photography of David Goldes: The Wright State University Art Galleries hosted “Art/Science: The Photography of David Goldes,” in September. Initially educated as a scientist, Goldes earned an M.A. in Molecular Genetics from Harvard University. He also earned an M.F.A. in photography from the State University of New York at Buffalo. The exhibition was sponsored by the Office of the Provost, College of Liberal Arts, College of Science and Mathematics and College of Engineering and Computer Science.

Events

Third Annual CoSM Awards and Recognition Ceremony: Students were recognized by the college for academic excellence and faculty/graduate teaching awards were presented. Various departmental awards were distributed as well. Dr. Noel Nussbaum, Neuroscience, Cell Biology, and Physiology, was recognized for 40 years of service to WSU and the College with a commemorative chair.
“Creationism, Intelligent Design, Evolution—What Should We Teach?” Eugenie C. Scott, Ph.D., discussed the scientific, educational, historical, legal, religious, and social aspects of this debate. Students, parents, teachers, and administrators will learn how to address questions and concerns about these thought-provoking topics.

The author of *Evolution vs. Creationism: An Introduction*, Dr. Scott is executive director of the National Center for Science Education, a nonprofit organization based in Oakland, California, that works to educate the press and public about the creationism and evolution controversy and to promote rigorous science education. A former university professor, Dr. Scott has brought her insights as both a researcher and an activist to the creationism/evolution debate for over 20 years.

Proctor & Gamble Lectureship: The Department of Chemistry was honored to have Professor Craig J. Hawker, Director of the Materials Research Laboratory at the University of California – Santa Barbara, as this year’s speaker in the Procter & Gamble Lectureship series. His talk was titled “Commercial Exploitation of Nanostructures: Studies at the Interface of Organic and Materials Chemistry.” Professor Hawker is the author or coauthor of approximately 200 scientific articles and 30 patents. He is currently one of the editors of the Journal of Polymer Science: Part A: Polymer Chemistry in addition to serving on the editorial boards of a number of other journals.

Partab T. Varandani Memorial Lecture: Nobel Laureate Paul C. Lauterbur, Ph.D., Department of Chemistry, University of Illinois at Urbana-Champaign spoke to an overflow crowd in the Fred White Center on the development of Magnetic Resonance Imaging (MRI).

Ronald Mallett, Ph.D.: Is time travel possible? One of the leading experts on this subject, University of Connecticut physics professor Ronald Mallett, Ph.D., spoke to students, faculty, staff and visitors on the possibilities of time travel in a talk on “A Brief History of Time Travel.” His work on time travel has been featured worldwide in such publications as New Scientist, the Boston Globe, Pravda, the Wall Street Journal and Astronomy magazine, plus on Japanese and German television and The Learning Channel. He is currently completing a non-
fiction book *The Time Traveler*.

**Faculty/Student/Alumni news**

**Presidential Appointee:** President George W. Bush appointed Delores Etter as Assistant Secretary of the Navy. Dr. Etter received her bachelor's and master's degrees from Wright State University. Dr Etter received the 2002 Outstanding Alumni Award from Wright State University.

**Fellow:** Wright State professor Robert Ritzi, Ph.D. named a fellow of the Geological Society of America.

**Appointed:** Dr. Allen Burton has been appointed to a National Research Council Committee on Sediment Dredging at Superfund Megasites. Congress has asked the NRC to produce a report by the end of 2006. He also was appointed to the U.S. Environmental Protection Agency's Science Advisory Board (SAB) for a three year term. The SAB was established in 1978 to "provide independent advice and peer review on the scientific and technical aspects of environmental problems and issues as requested by the EPA Administrator or by the Congress".

**University Awards:** Steven Higgins, Ph.D., assistant professor of Chemistry, received the 2005 President’s Award for Excellence in Early Career Achievement.
National Award Winner: Alex Gutmann, a Wright State University junior math major, received a $10,000 Texas Instruments Demana-Waits Scholarship for his academic excellence while also competing on the university’s cross country team.

Outstanding Alumni: Marc D. Porter, Ph.D., professor of chemistry at Iowa State University and a 1977 and 1980 Wright State University graduate, was the 2006 Outstanding Alumni Award winner from the College of Science and Mathematics. One of his Wright State professors considers Porter “one of the most talented, energetic, and stimulating students the Department of Chemistry has ever had.”

Young Investigators Award: Lindsey Mayo, PhD, assistant professor of radiation oncology and pharmacology at the Case Comprehensive Cancer Center, Case Western Reserve University, has received a Young Investigators Award from the General Motors Cancer Research Scholars (GMCRS) Program for his work involving a network of tumor suppressor proteins and an oncoprotein. Dr. Mayo earned his undergraduate degree in Life Science from Indiana State University and his doctorate in Biomedical Sciences from Wright State University.

Invited: Jeff Smigelski was invited to spend 18 days with scientists on the research vessel Thompson that explored undersea volcanoes in the Pacific Ocean. He served as a camera operator for an unmanned robotic submersible exploring black smoker chimneys on the ocean floor. His all-expenses-paid trip off the coast of Washington became possible after Deborah Kelley, Ph.D, one of the world’s leading experts on seafloor hydrothermal systems and geobiological processes, presented a lecture on the black smoker chimneys last spring at Wright State. Kelley, a faculty member at the University of Washington’s School of Oceanography and Astrobiology, talked about these vent fields in the ocean floor and the life forms that exist in such a hostile environment. Smigelski expressed an interest in this research field, and the result was his invitation to the Northwest.
Appointed: Dan E. Krane, Ph.D., an associate professor of biology, was appointed by the governor of Virginia to a panel of scientists charged with overseeing the state’s crime lab. The founder of Forensic Bioinformatics in Fairborn, Krane is known worldwide as an expert on DNA analysis. He joins 12 other scientists named to the Virginia panel. Widely recognized as one of the best labs in the country, the Virginia DNA testing lab headquartered in Richmond currently is under scrutiny following what Krane called “one of the two or three greatest scandals a U.S. DNA testing lab has known.”

Anniversary: The 25th anniversary of the WSU Biomedical Sciences Ph.D. Program was celebrated in October. Alumni and current and past faculty attended the weekend’s activities on campus. Alumni awards were presented to David James, Ph.D., for contributions to academic research, Bill Ralston, Ph.D., for industry research and development and Tamara Chelette, Ph.D., for her work with private and governmental research and regulatory organizations. In addition, a mentor honor was presented to WSU faculty member Michael Leffak, Ph.D., and a special citation was awarded to William Gardier, Ph.D., the first director of the program.

Awarded: Wayne Carmichael, director of the environmental sciences Ph.D. program and professor of biological sciences, recently received the Fourth Annual International Education Award. The International Education Award recognizes the successful efforts of members of the university community in expanding global awareness and international understanding on campus and in the surrounding communities. It also highlights innovations in curriculum development, the operation of study abroad activities and the provision of services to students and scholars.

Annual Dessert with Deans: This event was held to promote giving to the Campus Scholarship and Innovation Campaign in both the CoSM and the College of Liberal Arts. Faculty and staff from the two colleges engage in a friendly competition to see which college can raise the most money and achieve the highest participation rate. This well attended event is the culmination of the campaign and the competition.

Funkhouser reception: Through a generous contribution by Dr. James Funkhouser, the Funkhouser Self-Starter award was established. A reception was held to honor Dr. Funkhouser and allow his many friends and associates to express their appreciation for his leadership and support of the medical profession.
CoSM Advisory Board: A prestigious group of community leaders and alumni from around the country were chosen to serve as the College of Science and Mathematics Advisory Board. The board meets three times each academic year to have a dialogue with college leadership on matters important to the college and community.

Annual CoSM Cookout: The cookout was held to express the college’s appreciation to everyone who participated in to the annual Campus Scholarship and Innovation campaign. Scholarship recipients were invited to attend and had the opportunity to meet those who funded their scholarships.

CoSM Employee Longevity Lunch: Dean Wheatly hosted a lunch for CoSM employees celebrating 10, 15, 20, 25, 30 and 35 years of services to the University.

Other events: CoSM faculty and staff hosted a table of alumni and friends at the long running Madrigal Dinner in December in the WSU Student Union. The third annual CoSM Raider Basketball & Mexican Fiesta dinner drew nearly 150 alumni, faculty and staff gather for a pre-game dinner followed by an exciting basketball game in the Nutter Center. CoSM staff and alumni also participated in the annual WSU Alumni Association golf outing.
Departmental Summaries

Biochemistry and Molecular Biology
Biological Sciences
Chemistry Summary
Geological Sciences
Mathematics and Statistics
Neuroscience, Cell Biology, and Physiology
Physics Summary
Psychology Summary
Statistical Consulting Center
Biochemistry and Molecular Biology

Faculty Highlights

Department faculty published or had in press a total of 22 journal papers or book chapters, and gave 30 national, international or local presentations and invited talks.

Dr.’s Alter, Berberich, Organisciak, Paliy and Prochaska were invited to participate in or chair symposia.

Dr.’s Alter and Paietta are Ad Hoc reviewers for the National Science Foundation.

Dr. Berberich is an Ad Hoc reviewer for the National Cancer Institute (NIH) and the International Research Foundation.

Dr. Leffak is an Ad Hoc reviewer for the Israel Cancer Research Foundation and serves as a regular member of a NIH review panel.

Dr. Paietta served as an Ad Hoc reviewer for the Council for Earth and Life Sciences, Dutch Research Council.

Dr. Kadakia is an Associate member for the American Association for Cancer Research and continues to serve on the Miami Valley Association for Women in Science.

Dr. Organisciak serves as an elected trustee in Biochemistry and Molecular Biology for the Association for Research in Vision and Ophthalmology and as a Board Member for the Academy of Medicine, SOM, the Sinclair Community College Biotechnology Consortium, and the Ohio BRTT project on Age Related Macular Degeneration.

Dr. Berberich serves as vice president for the WSU chapter of the National Scientific Association of Sigma Xi and Dr. Prochaska serves as Secretary/Treasurer.

Dr. Prochaska is co-chair of the American Heart Association Ohio Valley-Southern Consortium peer review study section and serves on the Board of Directors for the Miami Valley American Heart Association. He also serves as the Treasurer of the Bioenergetics subgroup of the Biophysical Society.

Awards to Faculty, Staff, Students

Dr. Michael Leffak received the first ever “Mentoring Award” from the Biomedical Sciences Ph.D. program.

Shere Meyers and Teresa Cvetkov were recognized as 2005 Outstanding Graduate Student Awardees in the Biomedical Sciences Program. Their mentors are Dr. Leffak and Dr. Prochaska, respectively.

Outreach Programs
Drs. Alter and Organisciak gave talks for the Café Scientifique program of the Montgomery County Park District.

Dr. Alter continues to serve as a judge for the high school science fair program and the Destination Imagination, technology/science competition.
**Biological Sciences**

**Faculty Highlights**

Thirty refereed journal articles were written by the faculty in Biological Science.

More than 50 presentations and invited talks were given locally, nationally and internationally.

Drs. Baird, Carmichael, Goldstein, Krane and Vadeboncoeur were invited to participate in or chair professional symposia.

Drs. Carmichael, Cipollini, Goldstein, Krane, Vadeboncoeur, and Van’t Hof served as members of granting agency study sections, including American Heart Association, Environmental Protection Agency, and National Science Foundation.

Eight faculty members hold offices in twenty-three national professional organizations.

Dr. Goldstein co-led a group of 20 medical and pre-medical students to Brazil for a course on “translational physiology,” the interacting contributions of laboratory research and clinical medicine.

Dr. Dan Krane was a court-appointed expert in the areas of molecular biology, forensic DNA testing, bioinformatics and population genetics. He also organized the third annual “Expert Forum on The Science of DNA Profiling,” attended by nationally recognized scientific experts and attorneys and approved for continuing legal education credit by the Supreme Courts of 42 states.

Dr. John Stireman had his research (PNAS paper) featured by several media organizations and mention of it appeared online, in print, and/or on the radio in: The New York Times, National Geographic, Scientific American, Science online, Science and Development online, and the BBC.

Dr. Thomas Van’t Hof was widely quoted in national and international media on the potential spread of avian flu by migratory birds.

**Awards to Faculty, Staff, Students**

Dr. Roberta Pohlman received the WSU Award for Innovative Excellence in Teaching, Learning, and Technology, and was also named WSU Honors Teacher of the Year.

Dr. Wayne Carmichael was recipient of the WSU Center for International Education’s award for outstanding contribution to international education.

Kristin Watts, a Biology major, was Wright State’s Student Employee of the Year.

Andy Diller, an honors student in Biology, received WSU’s Distinguished Senior Leader Award.
Gwyn Boehringer, a Biology student in the Environmental Sciences PhD Program, won the Rhonda and Paul Sipp Wetland Research Award from the Ohio Center for Wetland and River Restoration.

**Outreach Programs**

Dr. Jim Amon edited and contributed to “The Spotted Turtle,” newsletter for Beaver Creek Wetland Association.

Dr. Scott Baird organized the Dayton Evolution Group.

Dr. Wayne Carmichael provided advice to high school students for their science fair projects.

Dr. David Goldstein spoke on Intelligent Design and evolution to Temple Beth Jacob, Dayton.

Dr. Barbara Hull served on the Board of Directors, Admissions Committee, Honor Seminars of Metropolitan Dayton

Dr. James Runkle participated in initial ecosystem management review of Kirkmont, a Presbyterian church camp in Ohio

Dr. Stephanie Smith hosted representatives from Battelle Memorial Institute (Columbus, OH) to give a seminar to graduate students about opportunities in contract research.

Dr. John Stireman participated in education about insect diversity through the Earthwatch foundation

Marcia Wendeln coordinated workshops for “Take Our Daughters to Work Day,” Science Fair 101, and Tech Fest.

**Student Clubs and Activities**

Biology Club activities included “academic” meetings (e.g., presentations from faculty and others on topics such as department research and careers in life sciences) and service activities (e.g. promoting recycling, maintaining trails), as well as social activities.
Chemistry Summary

Faculty Highlights

Nineteen refereed journal articles were written by the faculty in Chemistry. Forty presentations and invited talks were given locally, nationally and internationally (Czech Republic, Italy).

Dr. Roger Gilpin was an Associate Editor for the Journal of Chromatographic Science.

Dr. Paul Seybold was on the Editorial Advisory Board of both Chemistry & Biodiversity and Current Computer-Aided Drug Design. Further, he was on the Advisory Board for the Ohio Molecular Computational and Simulation Network.

Dr. Kenneth Turnbull was a scientific editor & Control Board member of ARKIVOC (an electronic journal) and a volume editor for Comprehensive Heterocyclic Chemistry-III. Dr. Kenneth Turnbull was a member of the U.S. Civilian Research and Development Foundation (CRDF) – Chemistry review panel.

Dr. Daniel Bombick served on the American Chemical Society/Analytical Division Awards committee.

Dr. Steven Higgins organized the “Advances in experimental and theoretical methods for characterization of mineral-fluid interfaces” Symposium held at the 2005 V.M. Goldschmidt Conference in Idaho, U.S.A.

Dr. Daniel Ketcha was the Workshop Co-Organizer for the National Science Foundation Workshop in the Chemical Sciences titled “Solid Phase Synthesis and Combinatorial Chemistry” held at Miami University.

Awards to Faculty, Staff, Students

Both Dr David Dolson and Dr. Suzanne Lunsford received CoSM Outstanding Teaching Awards.

Dr. Paul Seybold was named an External Fellow of the Center for the Study of Biological Complexity at Virginia Commonwealth University, Richmond, VA.

Dr. Steven Higgins was awarded a Wright State University Presidential Early Achievement Award.

Eleven students were recognized with external and internal awards:

- Candace Beach and Angie Sellers - Third Place Undergraduate Poster at the Kentuckiana Student Research Meeting
- Laura Bedrossian – American Institute of Chemistry Award
- Brian Brumfield – HyperCube Scholar Award & Outstanding Chemistry Graduate Student
- Shingirai Chirisa – Outstanding Chemistry Graduate Teaching Assistant
- Stephanie Cooke – Outstanding Chemistry Graduate Teaching Assistant
- Pragathi Kadiri – Outstanding Chemistry Graduate Teaching Assistant
- Sridevi Kaiti - Best Graduate Poster award at the Dayton ACS Patterson Awards meeting
- Zara Rhone – CRC Outstanding Freshman Chemistry Student Award
Laura Sennet – Outstanding Chemistry Graduate Teaching Assistant  
Ben Southerland - 2004 Patterson Award winner (outstanding Chemistry junior) & Analytical Chemistry Award

Outreach Programs

Dr. Steven Higgins acted as a science Olympiad coach for Tower Heights Middle School, Centerville.

Dr. Suzanne Lunsford directed teachers around the greater Cincinnati and Dayton, Ohio area with chemistry lessons that were inquiry-based. In addition, with Ed Pitzer (M.S. student), Dr. Lunsford presented “Adventures in Chemistry; A Crime Scene Investigation Mystery” at the WSU Exploring Science event.

The Chemistry Demonstrations Program, led by Profs. Emeriti Rubin Battino and John Fortman, with the assistance of Andrea Burns, students, and staff, reaches roughly 7500- 8000 high school, junior high, and grade school students each year with multiple presentations in December and March. It is, so far as we can determine, the largest chemistry outreach program in the nation (and possibly the world). Students are shown demonstrations of exciting chemical phenomena, with a lively dialog of information and humor.

Student Clubs and Activities

The Chemistry Club was a highly active student organization. Its activities included 30-minute meetings every other week, a monthly calendar available to all students, presentations of posters at scientific meetings, field trips to chemical companies, an active Demo Team that presented shows to area elementary schools; plus assorted volunteer and social events.
Geological Sciences

Faculty Highlights

Seven articles were published in refereed journals by department faculty. There were 38 presentations given at local to international meetings.

Dr. Burton was a keynote speaker at the Australasian Society of Ecotoxicology meeting in Melbourne, Australia, followed by 2 invited talks in Sydney (CSIRO) and Adelaide (Adelaide University). He was elected Vice President of the World Council of the Society of Environmental Toxicology & Chemistry. He was appointed to the National Research Council’s Committee on Dredging Effectiveness at Superfund Mega-Sites and to the Science Advisory Board of the U.S. Environmental Protection Agency on Ecological Effects and Processes. He served on the Editorial Board of two journals. Dr. Burton became interim-chair of the Geological Sciences Department in October.

Dr. Barton presented an invited lecture at Columbia University’s Lamont Doherty Earth Observatory and served as a Trustee of the Hubbard Brook Research Foundation in Hanover NH.

Dr. Carney had several presentations locally and nationally regarding Oakes Quarry, a local geological resource for research and educational programs.

Dr. Dominic was invited to conduct sediment flume experiments at Binghamton University in England on a joint project with Dr. John Bridge. He also is Associate Editor for the Journal of Sedimentary Research.

Dr. Ritzi was guest editor for an issue of Geosphere titled “Modeling Flow and Reactive Transport in Physical and Chemical Heterogeneity”.

Dr. Slattery continued to establish a strong science education program with presentations at national meetings in Salt Lake City and San Francisco and web publications.

Awards to Faculty and Students

Dr. Robert Ritzi was elected a Fellow of the Geological Society of America based on his research contributions.

Student Clubs and Activities

Sigma Gamma Epsilon Honor Society and the American Institute of Professional Geologists were active throughout the year participating in a variety of events and sponsoring scholarships:

- AIPG Annual Dinner
- Quarterly Adopt a Highway Cleanup
- Earth Science Week
• Movie Night, Book Sale, and Booth Awareness at campus events, TechFesh and the Children’s Water Festival
• Teaching in local schools and judging at science fairs
• Field trips
• Ronald McDonald Penny Drive
• SGE/AIPG Annual Senior Banquet
• Tarr Award and Field Camp Scholarships
Mathematics and Statistics

Faculty Highlights

Twenty-three refereed publications and book chapters were written by department faculty. Thirty-four presentations and invited talks were made at locations around the world. The department hosted twenty-two mathematics and statistics colloquia by regional, national and international scholars.

Various faculty members served on journal editorial boards, including Dr. K. T. Arasu for Designs, Codes and Cryptography; Dr. Harry Khamis for the Journal of Diagnostic Medical Sonography; for Computer Methods and Programs in Biomedicine, for the International Journal of Statistical Sciences, and for the Journal of Modern and Applied Statistical Methods; Dr. Steen Pedersen for the Far East Journal of Mathematical Sciences; Dr. Munsup Seoh for InterStat; Dr. Thaddeus Tarpey for The American Statistician; and Dr. Dan Voss for the Journal of Statistics and Applications.

Dr. Ann Farrell was appointed to a 3-year term on Ohio’s Science and Mathematics Education Policy Advisory Council, to advise the governor, chancellor and superintendent of public instruction.

Awards to Faculty, Staff and Students

Dr. K. T. Arasu was the recipient of the Wright State University Trustees’ Award for Faculty Excellence, the highest faculty award given by the university, honoring those who serve as the most outstanding of role models for all faculty.

Dr. Qingbo Huang was an invited member of the Mathematical Sciences Research Institute, Berkeley.

Dr. Makarand Ratnaparkhi was awarded professional development leave for the 2005-2006 academic year, visiting the University of Pune, India, the Violin Academy, Pune, India, and Miami University, Oxford, Ohio, to study and collaborate on modeling in microfinance, modeling and longitudinal study of Indian classical music, studying lead-time bias and length bias in survival analysis for cancer studies, and studying shrinkage estimation problems.

Drs. Ann Farrell and Susann Mathews continue as Teaching Fellows in Ohio, two of 18 awarded by the Ohio Board of Regents for 2004-2006.

Mary Alspaugh was a recipient of the President’s Award for Excellence in Leadership.

Undergraduate major Alex Gutman was a recipient of a 2005 Texas Instruments Demana-Waits Scholarship.

Undergraduate major Micah Fuerst was a University Honors Scholar.

Ishwari Dhakal and David Powder received the Graduate Student Excellence Awards in Applied Statistics and in Mathematics, respectively.
Outreach Programs

Dr. Ann Farrell is a member of the Educator Standards Writing Team for the Ohio Department of Education.

Dr. Susann Mathews is of member of the “P-6 Specialist Endorsement Standards for Mathematics” Lead Writing Team.

Dr Terry McKee gave an Honor Seminars of Metropolitan Dayton talk on “Polyhedral Graphs: From Soccer Balls to Buckyballs”

Dr. Richard Mercer served as the WSU Institutional Representative for the Goldwater Scholarship Competition, and as Director of the K-8 Chess Club for Beavercreek Schools.

Dr. Michelle Reed was a member of the Advisory Board for “Prompt Intervention in Mathematics Education (PRIME): Research and Best Practices”, a project of the Ohio Resource Center for Science, Math and Reading. She also hosted and proctored the Ohio Council of Teachers of Mathematics math contest at WSU.

Dr. Munsup Seoh has been a Steering Committee Member for the second and third Asian American Health Conferences.

Dr. Thaddeus Tarpey was President of the Dayton Chapter of the American Statistical Association, Dr. Shuxia Sun was Secretary-Treasurer of the chapter, and Dr. Munsup Seoh was the Webmaster.

Dr. Dan Voss was an External Nominator for the Wilcoxon and Youden Awards for best papers, for the ASQ Chemical and Process Industries Division. He also entertained pre-college students with his presentations on “Mathematics and Puzzles” for the CoSM Exploring Science program, gave an Honor Seminars of Metropolitan Dayton talk on “Statistics: Precision guesswork”, and served on the Board of Directors of Honor Seminars of Metropolitan Dayton, Inc.

Student Clubs and Activities

Dr. Manley Perkel prepared students and facilitated their participation in the Putnam Mathematical Competition.
Neuroscience, Cell Biology, and Physiology

Faculty Highlights

Twenty-six peer-reviewed articles were published in 2005; four faculty were invited to present and/or chair symposia; faculty served as editorial board members (6) and/or members of granting agency study sections (6); three faculty held offices in professional organizations.

Awards to Faculty, Staff, Students

Faculty
- Eleven faculty members won over $2.3 million in fiscal 2005.
- Dr. Cambronero received a professional achievement award from his hometown in Spain
- Ms. Mechlin received The Omicron Delta Kappa leadership award

Students
- Students with Dr. Putnam were honored: Jason Chua with the Outstanding Poster Award at the STREAMS Symposium; Susan Conrad was the invited speaker at the international IUPS meeting in San Diego; Dr. Lynn Hartzler (postdoctoral student) with an NIH postdoctoral fellowship.
- Dr. Brown’s student, Kashmira Kalkarni, received the WSU Outstanding Graduate Student Award of Excellence
- Nineteen students matriculated: 3 BMS PhD; 14 Anatomy Master’s; 2 Physiology and Biophysics Master’s

Outreach Programs

Four of our faculty presented in the Boonshoft School of Medicine Mini-Medical School (“Brain Anatomy and Function”). Dan Miska provided lab tours for nearly 1000 high school students.
Physics Summary

Faculty Highlights

Seventy-three refereed publications and book chapters were written by department faculty. Forty-three presentations were given, including five invited ones. Nine seminars were hosted by the department.

Dr. Sarah Tebbens gave presentations on the December 2004 tsunami as part of the WSU Honors Dialogue and the Honors Seminars of Metropolitan Dayton series.

A Research Experience for Undergraduates (REU) program, funded by the NSF was held at WSU under the supervision of Dr. Doug Petkie. Ten students from around the country were selected to participate.

Dr. Doug Petkie organized the Terahertz Ohio Workshop which was held at WSU on September 23, 2005.

Awards to Faculty, Staff, Students

The Physics Department awarded scholarships for 2005-2006 to the following students: Charles Phelps (Merrill Andrews Scholarship), and Leah Bischoff and David Fultz (Physics Scholarship – CSC).

Amir Motamedi was an undergraduate honors student under Dr. Brent Foy. His project was entitled Neuron modeling.

Four students were inducted into the Sigma Pi Sigma Physics Honorary Society (David Fultz, Mark Kipling, Charles Phelps, Kristin Wallen).

Outreach Programs

Mr. Will Wagner developed and taught a module for Take our Sons and Daughters to Work Day (April 18). Participants: 10.
Psychology Summary

Faculty Highlights

Thirty-four refereed publications and book chapters were published, and fifty presentations and invited talks were given by the faculty. Two faculty received invitations to participate or chair three different symposia sessions. Three faculty members participated on Granting Agency Study Sections Memberships (e.g., national Science Foundation, National Institutes of Health). Drs. Kevin Bennett and John Flach serve on editorial boards of journals. Our faculty and grad students participated in organizing and hosting the 13th International Symposium on Aviation Psychology held in Oklahoma City, OK.

Offices held in National Professional Organizations

Dr. Kevin Bennett is a member of the Human Factors and Ergonomics Society Accreditation Review Committee. Dr. Larry Kurdek is a member of the Board of the International Association for Relationship Research, Dr. Tamera Schneider is a member of the Health Psychology Membership Committee, and Dr. Debra Steele-Johnson is a member of the SIOP Small Grant Program 2004-2005.

Awards to Faculty, Staff, Students

Dr. Martin Gooden was awarded the College of Science and Mathematics Outstanding Teaching Award.

Outreach Programs

Dr. Dragana Claflin was a mentor for the Career Mentorship Program, Darke County Education Service Center, Greenville Ohio.

Drs. Tamera Schneider and Scott Watamaniuk presented at the Social Research Methods Poster session in November 2005 and participated in the Psych Club/Psi Chi "Pie your Professor" booth in October 2005. Dr. Watamaniuk also participated in the Science Fair 101 at Wilberforce in collaboration with Dayton Public School High School students in August 2005 and the CoSM Exploring Science Week in December 2005 with Curt Pederson.

Drs. Wayne Shebilske, Debra Steele-Johnson, and John Flach participated in the IGERT Technology-based Learning with Disabilities program through WSU. Lisa Douglas and Julio Mateo, graduate students in the Human Factors and Industrial/Organizational graduate program, were awarded assistantships through IGERT during Fall quarter 2005.

Student Clubs and Activities

Dr. Wayne Shebilske served as the advisor for the Psych Club and Psi Chi.

Dr. Martin Gooden presented a workshop to the Psych Club/Psi Chi on "Applying to Graduate School."

Undergraduate Honors Students
Dr. Dragana Claflin was the Honor's Thesis Director for Sarah Jensen, "Early Exposure to Corticosterone Impairs Hippocampal-Mediated Learning in Males but not Females." 2005 Midwestern Regional Psi Chi Award Winner.

Dr. Martin Gooden was the Honor's Thesis Director for Donna Jaccabucci, "Personality and contextual influence leading to aggression"; Jessica Warman, Prejudicial biases on the perceptions of sexual harassment"; and Anna Hatala, "Using social comparison to provoke stereotype threat in math performance."
Statistical Consulting Center

The SCC staff worked with 120 clients in 2005. The Boonshoft School of Medicine was the heaviest user of our services (37% of consulting hours), followed by the College of Science & Mathematics (16%), the College of Nursing and Health (13%), external clients (10%), and College of Education and Human Services (9%). Sixty-four percent of our clients were faculty and 18% were graduate students or Boonshoft School of Medicine residents or fellows.

Our external clients this year included, among others, Mercy Medical Center (Springfield), Miami County Parks District, Community Hospital (Springfield), Sinclair Community Hospital, Kettering Medical Center, and Uppsala University School of Medicine (Sweden). Additionally, the SCC provided several client data sets (with client permission) to be used as exercises and examples in the new 8th edition of Wayne Daniel’s classic text “Biostatistics: A Foundation for the Health Sciences” (copyright 2005), resulting in numerous citations in the book of the WSU Statistical Consulting Center. Finally, a well-attended shortcourse entitled “Applied Statistics: An Overview” was offered to the Dayton area community.

On campus, major projects included time-consuming, but important work with the Laboratory Animal Care and Use Committee, presentation of an on-line shortcourse for the College of Nursing and Health, a one credit hour shortcourse for the Biomedical Sciences Ph.D. Program, two major projects with the College of Nursing and Health (“Future THINK” survey for the Dayton area and the annual “Caregivers’ Perceptions of Organizational Dimension in Hospital Nursing Practice” survey), work with the Nursing Institute of West Central Ohio in conjunction with the Center for Urban and Public Affairs, work with the Urban Literacy Institute through the College of Education and Human Resources, continuation as a research support service for the Cancer Prevention Institute, and opscan form projects (design, scanning, and database construction) of (1) MTH 102 surveys for the Department of Mathematics & Statistics, (2) the Lifespan Health Research Center, and (3) the WSU Office of the President.
Summary Statistics

COSM Faculty Productivity

<table>
<thead>
<tr>
<th>Faculty Activity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refereed journal articles and book chapters</td>
<td>243</td>
</tr>
<tr>
<td>Presentations and invited talks</td>
<td>292</td>
</tr>
<tr>
<td>Faculty invited to participate or chair symposia</td>
<td>31</td>
</tr>
<tr>
<td>Faculty members of editorial boards</td>
<td>32</td>
</tr>
<tr>
<td>Study section members of a granting agency</td>
<td>32</td>
</tr>
</tbody>
</table>

COSM Research Funding

<table>
<thead>
<tr>
<th>Department Type</th>
<th>Dollars received</th>
<th>Number of grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Departments</td>
<td>$6,836,419</td>
<td>123</td>
</tr>
<tr>
<td>School of Medicine affiliated departments</td>
<td>$4,378,179</td>
<td>35</td>
</tr>
<tr>
<td>Total Research funding</td>
<td>$11,214,598</td>
<td>158</td>
</tr>
</tbody>
</table>

COSM Enrollment Data

Undergraduate degree programs

<table>
<thead>
<tr>
<th>Data Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>CoSM undergraduate majors mean GPA</td>
</tr>
<tr>
<td>1700</td>
<td>Students enrolled with a major in an undergraduate CoSM program</td>
</tr>
<tr>
<td>320</td>
<td>Students graduated with honors, including 14 general studies honors scholars, 3 departmental honors scholars, and 6 university honors scholars</td>
</tr>
<tr>
<td>20</td>
<td>Students graduated with a minor in CoSM</td>
</tr>
</tbody>
</table>

Masters degree programs

<table>
<thead>
<tr>
<th>Data Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>Students enrolled</td>
</tr>
<tr>
<td>10</td>
<td>Masters programs in the college</td>
</tr>
<tr>
<td>3</td>
<td>Ph.D programs in the college</td>
</tr>
<tr>
<td>100</td>
<td>Students graduated</td>
</tr>
</tbody>
</table>

Scholarships

<table>
<thead>
<tr>
<th>Data Point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>420</td>
<td>CoSM undergraduate students received a scholarship</td>
</tr>
<tr>
<td>$1,296,135</td>
<td>Awarded to undergraduate CoSM majors</td>
</tr>
<tr>
<td>111</td>
<td>CoSM graduate students received a scholarship</td>
</tr>
<tr>
<td>$585,468</td>
<td>Awarded to graduate CoSM majors</td>
</tr>
</tbody>
</table>
### Ph.D. Program Information and Statistics

#### Biomedical Sciences Ph.D. Programs

| Students enrolled in the BMS Ph.D. program | 52 |
| Students graduated in 2004 | 2 |
| Students entered the program 2004 (one of which are MD/Ph.D.) | 8 |
| Students made program-sponsored trips to present research at national or international meetings | 8 |

#### Human Factors and Industrial/Organizational Psychology Ph.D. Program

| Students were enrolled in the I/O and HF Graduate Program (7 MS; 47 Ph.D.) | 54 |
| Ph.D. students entered the program Fall 2004 | 10 |
| Students received support from sources including departmental support and faculty grants (34 were Ph.D.) | 36 |
| MS students graduated | 4 |
| Ph.D students graduated | 3 |
| Ph.D. student was awarded a Graduate Council Scholarship | 1 |
| Students made program-sponsored trips to attend or present at national or international conferences. | 27 |

#### Environmental Sciences Ph.D. Program

| Students accepted into the program | 5 |
| Students enrolled in the program | 25 |
| Students are on assistantships | 17 |