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## Biological Sciences Academic Program Review, 2014

Wright State University College of Science and Mathematics

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College: Science and Mathematics

Department: Biological Sciences

Academic Programs Reviewed

1. Bachelor's in Biological Sciences
2. Clinical Laboratory Sciences
3. Masters of Science in Biological Sciences

Program Review Committee (insert name and title of committee members)

Committee member 1. Laura Buerschen, Assistant to the Chair

Committee member 2. Dr. Cheryl Conley, Director of the Clinical Lab Science Program

Committee member 3. Dr. Scott Baird, Professor

April 6, 2015

Submitted Department Chair, Dr. David Goldstein



Dean, Dr. Yi Li



# Program 1. Biological Sciences

## Enrollment and Graduate History

### Enrollment

Biological Sciences Dept	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Biological Sciences - BA/BS	748	752	766	802	752
Biological Sciences (minor)	4	4	7	6	9

### Degrees Awarded (2nd Majors included)

Biological Sciences Dept	09-10	10-11	11-12	12-13	13-14
Biological Sciences - BA/BS	93	101	125	123	119
Biological Sciences (minor)	2	2	5	4	4

### Program Description

The Department of Biological Sciences offers the following degree programs: Bachelor of Science and Bachelor of Arts in Biological Sciences, and Bachelor of Science in Clinical Laboratory Science. Within the B.S. degree, we offer a specialized track in Applied Physiology and Life Sciences Licensure. Students can also focus their studies in health professions (e.g., medicine, dentistry, optometry). Students plan their individual programs of study with the help of departmental advisors.

The teaching and research programs of the department are conducted in modern, well-equipped classrooms and laboratories. Our curriculum fosters critical thinking and scientific reasoning, and many courses, including cell culture, biostatistics, cell and molecular laboratory, and others, build particular skills. A 200-acre biology preserve on campus, and nearby parks and preserves such as the Beavercreek Wetlands, provide excellent opportunities for terrestrial and aquatic field studies, as do field-based courses like ornithology and Amazon ecology. Many undergraduate students include faculty-guided, independent research projects in their academic programs.

The Bachelor of Science curriculum offers a broad, integrated, and in-depth approach to the life sciences. Departmental requirements consist of a balanced core of courses selected from several subject areas, combined with elective courses from the Department of Biological Sciences and other life science departments such as Neuroscience, Cell Biology & Physiology, and Biochemistry & Molecular Biology.

Within this degree, several options are available to students. Programs of study can accommodate students with such differing interests and objectives as graduate work in molecular biology, laboratory work in microbiology, or field work in ecology. Programs also satisfy the curricular requirements for educational licensure and admission to professional schools in health sciences, including human and veterinary medicine, physical therapy, physician assistant, dentistry and others.

Our departmental honors program allows qualified students to carry out sustained independent projects under the guidance of faculty sponsors. Students who have maintained a cumulative GPA of 3.4 during

the preceding two semesters may apply to the Department of Biological Sciences to pursue an honors program. Application for admission to the program should be made during the student's junior year. Students interested in the honors program should contact the departmental office.

### **Description of how unit programs and curricula are “mission critical” to the core Wright State educational experience**

The mission of the Wright State Core is to provide students with innovative and dynamic opportunities designed to engage learners in becoming active, conscientious, educated citizens of a diverse world. The Biology Department offers Biology of Food, Global Ecology & Diversity, Health & Disease, Cells & Genes, and Organisms & Ecosystems which fulfills the Natural Sciences in the universities core. These courses teach the understanding of scientific inquiry by allowing students to experience investigative laboratory processes. Students in the departmental programs also learn to distinguish between science and technology and recognize their roles in society. The Department of Biological Sciences provides access to scholarship and learning, technological development, and cultural enhancement while fostering collegial involvement and responsibility for continuous improvement of education and research.

### **Program distinctiveness**

The Biological Sciences undergraduate programs offer degrees in:

- **Bachelor of Science in Biological Sciences**
- **Bachelor of Science in Biological Sciences, Applied Physiology Concentration**
- **Bachelor of Science in Clinical Laboratory Sciences**
- **Bachelor of Science in Biological Sciences: Life Science Education**
- **Bachelor of Arts in Biological Sciences: Life Science Education**
- **Bachelor of Arts in Biological Sciences**
- **Minor Program**

Our department offers a wide variety of equipment and facilities include optical and electron microscopes, darkroom, environmental chambers, scintillation counters and ultracentrifuges, a greenhouse and a 60-acre wooded preserve, an animal housing facility, collaboration with other Life Science departments at Wright State as well as Dayton area institutions (including Wright-Patt Air Force Base, several facilities affiliated with the School of Medicine, and other universities in the Miami Valley consortium

Biological Science department allows undergraduate students the ability to engage in research and collaborate with faculty, post-doctoral students, and graduate students.

The department has a large breadth in teaching and research including cell and molecular biology, ecology, evolution, environmental biology, organismal, and science education.

The graduating student will possess adequate skills in scientific writing/statistical analysis and associated computer literacy. Approximately 90% of our courses are laboratory based and are writing intensive in nature since they require several lab reports. Computer skills are developed and reinforced in many of our courses through uses in instructional web pages including on-line course notes, quizzes, tests, and discussions. Many instructors communicate electronically with their students, require tests to be taken on line and require student presentations to be made using PowerPoint.

## Recognitions of quality of the program

Our Honors program is centered upon the production of a senior honors thesis based upon original research. The student works closely with a faculty sponsor on the formulation and execution of the research project and thesis preparation. The faculty sponsor in concurrence with the departmental Honors Committee is responsible for the evaluation and approval of the thesis. The program has on average 15 honors student per year.

## ACTIONS TAKEN TO IMPROVE STUDENT LEARNING

What actions did you take in 2012-2013, based on previous assessment findings, to improve student learning in your program? (Refer back to plans indicated in "Response to Assessment Findings" in 2011-2012 Assessment Report.)

- The Undergraduate Curriculum Committee raised the grade requirement to a grade of C or better in all COSM courses, not just BIO courses.
- The Math placement score was increased from MPL4 to 30.
- Bio 2100 is now a required course to assist students' understanding of the degree options available, future employment options, graduation requirements, etc.
- 

## STUDENT LEARNING OUTCOMES ASSESSED AND EXAMINED

Which Program Level Student Learning Outcomes did you assess and examine during 2012-2013? List the Program Level Student Learning Outcomes using the format of "Graduates will be able to \_\_\_\_\_."

- Graduates will be able to communicate scientific information effectively.
- Graduates will be able to demonstrate mathematical literacy.

## METHODS FOR COLLECTING DATA

Which students were included in the assessment? (For example, all seniors completing Course X in Spring 2013, all graduating seniors, etc.)

- Students completing Bio 2130 in Fall 2012, and students completing Bio 4020 in Fall 2012 as well as Summer 2013 were included in the effective communication assessment.
- Students completing Bio 4090 and 4600 in Fall 2012 were included in the mathematical literacy assessment.

## ASSESSMENT MEASURES

- What key assessments/assignments/student work did you examine to directly assess the Program Level Student Learning Outcomes listed above?
  - To assess students' ability to communicate effectively, we analyzed final grades for the Bio 2130 and Bio 4020 writing intensive courses. Students are also required to present in their Capstone courses as well.(ie. Bio 4020)
  - To assess students' mathematical literacy in the sciences, we analyzed final course grades for Bio 4090 and 4600.
- What, if any, indirect assessments (e.g. exit survey, alumni survey, focus groups, etc.) did you use to indirectly assess the Program Level Student Learning Outcomes listed above?
  - 2012 MCAT scores, Professional school placement rate (see attached supporting documentation)

## **SIGNIFICANT FINDINGS**

What did you find from your assessments? What did your data reveal about how well students are achieving the Program Level Student Learning Outcomes that you listed above?

- Our students can communicate scientific information effectively, have a sound knowledge of biological concepts and possess mathematical literacy.
- Data supporting Effective Communication:
  - Bio 2130 final course grade analysis showed 84 of the 107 students earned a C or better.
  - Bio 4020 final course grade analysis showed 54 of the 56 students earned a C or better.
  - Our students taking the MCAT have a Verbal Reasoning subscore higher than the national average.
- Data supporting Mathematical Literacy:
  - Bio 4090 grade analysis showed 2 of the 3 students to complete the course earned a C or better
  - Bio 4600 grade analysis showed 15 of the 19 students earned a C or better.
- Our students taking the MCAT in 2012 had a Biological Sciences subscore of 8.7 which is in line with the national average of 8.8, and their average total MCAT score of 24.9 is on track with the national average of 25.2.

## **DISCUSSION OF RESULTS**

How were results shared? With whom were they discussed?

- These results were discussed in our Assessment Committee Meeting, which is composed of 1 advisor, 1 administrator and 4 faculty. It is shared with the rest of the Biological Sciences department on our department's Share Drive and faculty meeting.

## **ACTIONS PLANNED TO IMPROVE STUDENT LEARNING**

Based on what you learned from your assessment of the Program Level Student Learning Outcomes, what actions do the faculty in your program plan to take to improve student learning in your program/area? Describe the steps faculty have taken/will take to use information from the assessments for improvement of student performance and the program. List additional faculty meetings or discussions and planned or actual changes to curriculum, teaching methods, approaches, or services that are in response to the assessment findings.

- Bio 2100 will utilize research workshops offered at the library to increase research and written communication skills. This should have impact students earlier in their academic career which in turn will increase written and verbal communications in the upper level courses.
- Assessment committee to develop, standardize and distribute assessment tools for collection of comprehensive data to be used in future yearly assessments.
- Assessment committee working with Biology Undergraduate Curriculum committee to increase consistency across the senior – level capstone courses (Bio 4000, 4020, 4920) in oral and written communication requirements and utilization of assessment tools developed by said committee.

### **Major curricular changes since last review (or past five years)**

- Quarter to Semester conversion: During the conversion, previous concentrations in M&I, Bioinformatics, Ecology, & dual Biology/Chemistry were returned to the Bachelor of Biology degrees now located in the life sciences electives.
- Switching Exercise Biology to Applied Physiology
- All COSM courses taken by Biology degree seeking students must earn a "C" or better.

### **Graduate placement data, employer satisfaction**

For Su13: %

Grad school: 50

Professional School: 12

Work in science (includes CLS): 38

Work outside of science: 0

Teaching: 0

62% grad or professional school

F13: %

Grad school: 30

Professional School: 40

Work in science: 23

Work outside of science: 0

Teaching: 8

70% grad or professional school

Sp14: %

Grad school: 29

Professional School: 54

Work in science: 14

Work outside of science: 1

Teaching: 8

83% grad or professional school

Su14:

Grad school: 22

Professional School: 33

Work in science: 33

Work outside of science: 0

Teaching: 11

55% grad or professional school

**If program has professional accreditation, - NA**

## Program 2. Clinical Laboratory Sciences Program

### Enrollment and Graduate History

	Fall 09	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Enrollment	12	12	14	14	14
Graduates	10	11	14	14	14

### Program description

The Clinical Laboratory Science Program is in the Department of Biological Sciences in the College of Science and Mathematics at Wright State University, Dayton, Ohio. The program is in a 3+1 or 4+1 format and culminates in a Bachelor of Science Degree in CLS (3+1) or a certificate of completion (4+1). Applications are submitted in the Fall of the year preceding the clinical year. The program accepts a maximum of 14 students.

The clinical year is 12 months and begins in May and ends the following May. The program is 3 semesters in length starting Summer semester and ending in the Spring semester. During the clinical year, students attend classes 6-8 hours each day, with lecture in the A.M. and accompanying student laboratory in the P.M. Clinical rotations begin in early September and conclude the following April. Students rotate through chemistry (6 weeks), hematology (6 weeks), microbiology (6 weeks), and blood bank (5 weeks with supplemental instruction at the Community Blood Center). Shorter rotations are offered during the 30 week schedule in flow cytometry, coagulation, serology, mycology, parasitology, molecular diagnostics, and laboratory management. Students attend the clinical rotation sites for 8 hours each day from Monday-Thursday. On Fridays, the students return to Wright State for advanced coursework. Students attend 3-3.5 hour lectures in advanced chemistry, advanced hematology, advanced immunohematology, and advanced microbiology for a 10 week period. Case studies are presented by pathologists and scientists in the area and are integrated into these advanced lectures. Students also take a laboratory management course in which principles of management, budget preparation, regulatory requirements, education, and test validation are discussed. Students also complete a special management/education project, write a scientific paper, and present findings in class.

Comprehensive exams are administered during the 12 month program. Students take the first exam prior to beginning their clinical rotations and the second prior to graduation. The results of these examinations are used in the evaluation process.

The program has a full-time director who also teaches several courses. The program has a half-time clinical coordinator who teaches the clinical laboratory orientation course as well as basic and advanced chemistry. Both the director and the clinical coordinator advise CLS students. The remaining faculty are adjunct instructors who work in area hospital laboratories or as full-time faculty in other colleges.



### **Alignment with university mission, strategic plan**

The Wright State Clinical Laboratory Sciences Program transforms students into laboratory professionals.

This program builds a solid foundation for student success by providing students with the tools necessary to successfully pass a national board of certification exam taken upon completion of the program.

This program provides an avenue for the students to conduct clinical research which can ultimately benefit the clinical laboratory in providing accurate and timely results for patient diagnosis.

The program provides meaningful community service because there is a predicted shortage of the clinical laboratory scientist both locally and nationally and the program carefully monitors supply and demand of these professionals.

The program contributes to economic revitalization of our region and our state. Because the laboratory scientist is in demand, approximately 100% of our graduates are working in the clinical laboratory setting within 1-2 months of program completion.

### **Program distinctiveness (5 max)**

The CLS Program offers the only 4 year Baccalaureate Degree in the Dayton area.

The CLS Program requires external accreditation by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). The Wright State CLS Program was assessed in 2012 and received a full 7 year accreditation.

As a NAACLS accredited program, educational and certification requirements for the position of program director and clinical faculty must be met.

The program has 15 clinical hospital laboratory affiliates which require separate affiliation agreements and must be reviewed annually.

The program has articulation agreements with accredited clinical laboratory technician programs in the State to provide a stream-lined process for students with an Associate Degree to complete their Bachelor's Degree in Clinical Laboratory Sciences here at Wright State.

### **Recognitions of quality of the program**

The Wright State CLS Program has a reputation for preparing the graduate to successfully pass the Board of Certification exam offered by the American Society of Clinical Pathologists (ASCP). The average program pass rate is 98% over the past five years compared to the national pass rate of 87%.

Based upon employer and graduate feedback obtained from post-graduation questionnaires, our graduates are better prepared than graduates from other programs, requiring less training time.

### **Program learning outcomes (From Student Handbook)**

#### **Entry Level Competencies**

Students completing the clinical year will be able to:

achieve professional recognition by taking national certification examinations and earning a Bachelor of Science degree and/or certificate in Clinical Laboratory Science/Medical Technology

exhibit professional discipline and scientific objectivity and responsibility

apply quality control principles to all laboratory testing

perform laboratory procedures accurately and recognize and correct erroneous results

understand the physiological mechanisms that give the tests significance

recognize the role of the clinical laboratory scientist/medical technologist relative to others in the health care professions

perform the many functions not directly related to test performance; such as, teaching, research, administration and quality improvement

recognize the need for professional growth and development by participating in continuing education

#### **Description of description of learning outcomes assessment program**

Annually the program director compiles statistics of graduation rates, pass rate for the Board of Certification exam, employment placement, and questionnaire data regarding graduate and employer satisfaction with the WSU CLS Program.

#### **Summary of assessment findings for past five years**

Over the past five years, sixty three students have completed the program. Sixty one students have taken the Board of Certification exam and all passed with the exception of one, resulting in a 98% pass rate. The national average pass rate is approximately 87%. There were personal/health issues given for the two who chose not to take the exam. Approximately 85% of our graduates are employed in the greater Dayton area in hospital laboratories. Of the 61 graduated clinical laboratory scientists, four moved from the Dayton area seeking employment elsewhere, and five of our graduates have gone on to professional schools such as public health, dental school, medical school, and physician assistant programs.

Graduate and employer responses to the CLS surveys indicate that the program prepared them well for their career and employers indicate that our graduates are well prepared.

Since 2010, our students have competed for and won a nationally acclaimed ASCP scholarship which attests to the quality of students in our program.

**Major curricular changes since last review (or past five years)**

None

**Graduate placement data, employer satisfaction**

The graduate and employer surveys have been distributed at the end of each clinical year. Unfortunately there is limited participation in these surveys. Of those who do participate, all indicate that our graduates are well prepared for the clinical laboratory workplace.

## Program 3: Masters of Science in Biological Sciences

### Enrollment and Graduate History

	Fall 09	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Enrollment	33	27	39	33	35
Graduates	12	10	11	9	11

### Program description

The Masters of Science in Biological Sciences program is a flexible, broad-based program that provides graduate education in all areas of Biological Sciences. Students may satisfy our degree requirements through either a thesis or a non-thesis option and are able to, in collaboration with their advisor, develop a course of study designed to meet their educational needs.

### Alignment with university mission, strategic plan

The Masters of Science Program in Biological Sciences:

- is dedicated to providing our students a high quality education through innovative courses and cutting-edge research,
- provides opportunities for our students and faculty to conduct innovative research in a variety of areas within biological sciences,
- provides graduate studies in areas such as health sciences, science education and ecology that often have direct positive impacts on the greater Dayton metropolitan area, and
- provides our students with the expertise to immediately engage in professional careers in all areas of biological sciences and to succeed in professional and graduate programs at the doctoral level.

### Program distinctiveness

The Masters of Science Program in Biological Sciences is designed with sufficient flexibility to allow:

- students working in diverse area of Biology to participate in a common program
- students with diverse goals to participate in a common program, these goal include
  - preparation for advanced studies in doctoral programs
  - preparation for employment as a research technician, and
  - preparation for teaching in Biological Sciences at K-12 or community colleges

### Recognitions of quality of the program

- Most Biological Sciences MSc students co-author peer-reviewed publications and/or present their thesis work at national and/or international scientific meetings.
- Upon graduation, most students in the Biological Sciences MSc Program either

are accepted into and continue their education in PhD programs, or

obtain employment in Biological Sciences laboratories (e.g. at Nationwide Children's Hospital in Columbus, at the Cincinnati Children's Hospital, or at Wright Patterson Airforce Base), or

use their MSc degree in Biological Sciences to obtain tenure or enhance their employment status at their teaching institution (e.g. Sinclair Community College

### **Program learning outcomes**

Biological Sciences MSc graduates will be able to:

1. communicate effectively,
2. demonstrate mathematical literacy,
3. evaluate arguments and evidence critically,
4. apply the methods of inquiry of the natural sciences and
5. demonstrate understanding of contemporary ethical issues.

### **Description of learning outcomes assessment program**

Assessments of learning outcomes for Biological Sciences Masters of Science students are conducted primarily by the advisory committees of these students. Thesis option students are required to submit a written thesis based on their research to their advisory committee and to present an open defense of their thesis to the department. Non-thesis students are required to write and present a literature review to their advisory committee. Advisory committees evaluate written theses, oral defenses and literature reviews for learning outcomes 1, 2, 3, and 4. Thesis-option students also are encouraged to present and publish their results at external meetings and in peer-reviewed journals. Learning outcome 5 is explicitly addressed and evaluated in BIO 7020, Introduction to Research, which is required for all Biological Sciences Masters students. It also is assessed implicitly in the research proposals and theses of all thesis-option students.

### **Summary of assessment findings for past five years**

Assessments prior to the 2012-2013 assessment evaluated graduates of the Biological Sciences Masters of Science program on learning assessments 1 – 4 relative to “students at a comparable stage of development”. The average evaluation for each of these students ranked our graduates as in “the upper 25%” of comparable students. The 2012 – 2013 assessment also noted that the ten Biological Sciences MSc graduates from that period published an average of 0.9 publications in peer-reviewed journals and made an average of 2.9 scientific presentations at external meetings during their graduate careers.

### **Major curricular changes since last review (or past five years)**

1. Quarter to semester transition, spring 2012 → fall 2012
2. Modification of BIO 7020, Introduction to Research, to focus on scientific ethics and the preparation of research proposals (i.e. to address learning outcomes 1, 2, 3, 4 and 5).

### **Graduate placement data, employer satisfaction**

All of the 2012 – 2013 Biological Sciences MSc graduates left Wright State for positions working in Biological Sciences. Four were admitted to and currently are in PhD programs in Biological Sciences. Two are instructors and Sinclair Community College. One became a field biologist at Five Rivers MetroParks. One has a position as an R&D Microbiologist. One is a certified eye bank technician. One is a research technician at WSU. Data on graduate placement was not available from prior program assessments.

As part of this assessment process, a draft procedures and policies manual has been developed for the Masters of Science Program in Biological Sciences. When approved by the Department of Biological Sciences, this manual will codify assessment procedures, including the use of exit surveys to better track the success of the students who graduate from our program.

**If program has professional accreditation, attach most recent review findings and recommendations**

Not Applicable.

## Departmental Summary

### Faculty demographics

	2008	2009	2010	2011	2012
Full	7	7.33	7.33	6.33	5.16
Associate	4.9	5.7	5.57	5.57	8.24
Assistant	7.5	7.5	7.5	7.5	4.83
Inst/Lect	4.5	3.5	2.5	2.5	3.5
Total	23.9	23.9	22.90	21.90	21.73

### Staffing Summary

	2008	2009	2010	2011	2012
Unclassified	3.76	3.75	4.75	4.75	5
Classified	3.24	3.25	3.24	3.24	2
Total	7	7	7.99	7.99	7

### Student/faculty ratio

	2008	2009	2010	2011	2012
Student FTE/Fac FTE	12.62	15.52	15.47	15.8	18.29

### Average class size

	2010	2011	2012
Lecture	59.19	88.31	80.66
Lab only	22.06	20.68	22.10
Lecture/Lab	50.88	74.41	76.18

### Total of student data for all programs in unit

#### Enrollment (Intent, Pre, & 2nd Majors included)

Biological Sciences Dept	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Biological Sciences - BA/BS	748	752	766	802	752
Biological Sciences (minor)	4	4	7	6	9
Biological Sciences - MS	33	27	39	33	35
Clinical Lab Science - BSCLS	53	94	75	68	68
<b>Biological Sciences Dept Total</b>	<b>838</b>	<b>877</b>	<b>887</b>	<b>909</b>	<b>864</b>
% Change		4.7%	1.1%	2.5%	-5.0%

### Degrees Awarded (2nd Majors included)

Biological Sciences Dept	09-10	10-11	11-12	12-13	13-14
Biological Sciences - BA/BS	93	101	125	123	119
Biological Sciences (minor)	2	2	5	4	4
Biological Sciences - MS	12	10	11	9	11
Clinical Lab Science - BSCLS	3	5	11	10	11
<b>Biological Sciences Dept Total</b>	<b>110</b>	<b>118</b>	<b>152</b>	<b>146</b>	<b>145</b>
% Change		7.3%	28.8%	-3.9%	-0.7%

### Total courses taught and credit hours generated for unit

	Fall 09	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Undergraduate	13,892	14,528	15,584	16,934	16,300
Graduate	905	918	1,093	1,004	996
<b>Total</b>	<b>14,797</b>	<b>15,446</b>	<b>16,677</b>	<b>17,938</b>	<b>17,296</b>

### Course completions

	2008	2009	2010	2011	2012
Undergraduate	85.2%	85.8%	87%	88.8%	85.6%
Master's	99%	95.8%	98.2%	96.0%	85.6%

### Expense per student and revenue to expense ratio

	2008	2009	2010	2011	2012
Expense per student	\$7,972	\$7,228	\$6,500	\$6,661	\$5,982
Rev/Expense	1.827	2.069	2.368	2.244	2.605

### Research and External Funding

	2008	2009	2010	2011	2012
External funding	\$868,195	\$1,104,117	\$1,484,639	\$2,237,806	\$2,076,756



## Future employment projections for discipline

CIP	Program	Wright State University - Main Campus Completions (2013)	Other Regional Completions (2013)	Regional Openings (2014)	Median Hourly Earnings	Location	Total Jobs for the Occupational Group (2014)	Total Jobs for the Occupational Group (2017)	Growth in Jobs (2014-2017)	Annual Job Openings (2014)
<b>Biological Sciences Dept</b>										
26.0101	Biology/Biological Sciences, General Occupations: Natural Sciences Managers (11-9121) Biological Scientists, All Other (19-1029) Life Scientists, All Other (19-1099)	129	177	10*	\$44.91	Region: State: US:	238 1,734 91,744	249 1,800 95,148	4.90% 3.80% 3.70%	10
30.0101	Biological and Physical Sciences Occupations: Natural Sciences Managers (11-9121)	9	0	6	\$49.34	Region: State: US:	142 1,136 50,130	150 1,181 52,161	5.40% 4.00% 4.10%	6
51.1005	Clinical Laboratory Science Occupations: Medical and Clinical Laboratory Technologists	10	16	41	\$26.46	Region: State: US:	862 6,061 162,361	906 6,375 171,173	5.20% 5.20% 5.40%	41
Department Total and Total Regional Job Openings		148	193	57						

## Faculty accomplishments and recognitions

- Promotions included Drs. Lynn Hartzler, Scott Baird, John Stireman, Volker Bahn, Kate Excoffon, Jeffrey Peters, Paula Bubulya, Lisa Kenyon, & Tom Rooney.
- Dr. Kate Excoffon was selected to receive the WSU President's Award for Faculty Excellence in Early Career Achievement. She is the 6th member of the current Biology faculty to receive that award.
- Dr. Dan Krane was elected as President of the Wright State faculty and named an ACE Fellow, one of just 31 nationwide.
- Dr. Lisa Kenyon was honored for Excellence in Education by Ohio Magazine.
- Dr. Lynn Hartzler received the 2012 CoSM faculty award for Outstanding Teaching.
- Dr. John Stireman's expertise in entomology was recognized when a newly described species of wasp was officially named *Ilatha stiremani* (Proc. Entomol. Soc. Wash. 114: 293-328, 2012).
- The first human gene therapy was approved for use in Europe and owes its development in part to Dr. Kate Excoffon, who played a key role in developing a drug, Glybera, designed to treat a disease that disrupts fat metabolism and causes severe pancreatitis attacks.
- Dr. Labib Rouhana recently spoke on regeneration at the National Academy of Science's Kavli Frontiers of Science symposia in Irvine, Calif. The symposia bring together outstanding young scientists to discuss exciting advances and opportunities in a broad range of disciplines.

## Programs and areas of recognized excellence with supporting evidence

NA

## Capacity for growth of programs

Currently the department is underway evolving our Orientation Seminar, BIO 2100, to integrate campus resources such as the library and career services.

With the department's recent set of new faculty hires, we are expanding our experiential learning via summer lab based courses. This also opens the door for additional undergraduate research opportunities.

### **New program opportunities**

The Biological Sciences department is looking into an Ecology or Environmental Sciences track within our Biological Sciences degree. The purpose of the track is to provide a focused biology curriculum for students interested in pursuing a career in ecology or environmental sciences.

### **Proposals to enhance programs**

The Biology Department's Orientation Seminar, BIO 2100, potentially will be offering certification workshop completion (Career Competency Certificate/Global Citizen).

The Biology advisors are looking into visiting local high schools (feeder schools) to encourage the importance of math placement test as they begin their journeys into the sciences. A possibility would be to offer them a math test to show them where they place before leaving high school and also show them if they need to take extra math courses before entering college. Our advisors would also like to foster connections with area high school guidance counselors to educate them about MPT and our programs.