Program Review

Master of Science/Master of Arts in Biological Sciences

College of Science

November 2014
Program Review
Marshall University

Date: November 1, 2014

Program: Master of Science/Master of Arts in Biological Sciences

Degree and Title

Date of Last Review: Academic Year 2009 – 2010

Recommendation
Marshall University is obligated to recommend continuance or discontinuance of a program and to provide a brief rationale for the recommendation.

Recommendation
Code (8):
1. Continuation of the program at the current level of activity; or
2. Continuation of the program at a reduced level of activity or with corrective action. Corrective action will apply to programs that have deficiencies that the program itself can address and correct. Progress report due by November 1 next academic year; or
3. Continuation of the program with identification of the program for resource development: Resource development will apply to already viable programs that require additional resources from the Administration to help achieve their full potential. This designation is considered an investment in a viable program as opposed to addressing issues of a weak program. Progress report due by November 1 next academic year; or
4. Development of a cooperative program with another institution, or sharing of courses, facilities, faculty, and the like; or
5. Discontinuation of the program

Rationale for Recommendation: (Deans, please submit the rationale as a separate document. Beyond the College level, any office that disagrees with the previous recommendation must submit a separate rationale and append it to this document with appropriate signature.)

Recommendation: Signature of person preparing the report.

Recommendation: Signature of Program Chair.

Recommendation: Signature of Academic Dean.

Recommendation: Signature of Provost and Senior Vice President for Academic Affairs.

Recommendation: Signature of Chair, Board of Governors.

Date: 10 Feb 2015
Date: 11 Feb 2015
Date: 1/31/2016
Date: 4/3/15
Date: 4/5/15

* The Grad Council supports this program's request for GA funding.
College/School Dean’s Recommendation

Recommendation: Continuation of the program with identification of the program for resource development (code #3).

Rationale: I am writing in strong support of the recommendation to continue the MS/MA graduate program in Biological Sciences (BSC) with identification of the program for resource development (code #3). This is the largest graduate program in the College of Science (CoS), and it is critical to the delivery of the departmental undergraduate curriculum. Graduate assistants (GAs) teach the vast majority of laboratory classes associated with non-majors undergraduate BSC courses. Having GA lab instructors allows BSC professors to lecture to several sections of a class at the same time without having prohibitive teaching loads. One outcome of this arrangement is that BSC is able to support thousands of undergraduate enrollments in service courses with few full-time faculty positions relative to course enrollment. For example, if a full-time faculty member lectures to six sections of a course (approximately 24 enrollments per section) and also teaches the laboratory sections of the course, the resulting teaching load is 15 contact-hours per week. A full load is 12 contact-hours per week. Therefore, that faculty member would be overloaded by teaching a single course. If GAs teach the laboratory sections of the course, then the professor’s load for that course is three contact-hours per week, which allows that faculty member to teach up to three additional courses within load in the core or major’s curriculum. It is no exaggeration to say that with current staffing levels it would be impossible to deliver the BSC curriculum without this graduate program.

The MS/MA program in BSC also supports research productivity. The same reduction in teaching load provided by GA support described above could allow a faculty member to teach two courses and still devote roughly 50% of his or her time to research. To be clear, the availability of an active, quality graduate program means that a single faculty member can lecture in more courses and also be involved in revenue-generating grant activity than the same faculty member could do in the absence of the graduate program. This mechanism has been used to good effect in BSC, where both faculty research productivity and external funding have increased in recent program reviews. At the same time, graduate students support faculty research, perform their own research projects, and mentor undergraduate students who participate in research. Furthermore, state and federal funding agencies have identified a need for increased graduate degree production in science, technology, engineering and math (STEM) disciplines, and the presence of an active graduate program is a necessary criterion in competitiveness for those funds. Thus, the graduate student contribution to research productivity is multifaceted and central to both the BSC teaching and research missions.

If the MS/MA program in BSC is already successful, why does it need additional resources? The two major threats to the BSC graduate program are the value of the
GA stipend, and the value of the tuition waiver that is available to GAs. In the sciences, talented graduate students are in high demand for the reasons outlined above. Students make their graduate school choices based on faculty reputation and the value of the package (stipend plus tuition waiver) offered. While faculty reputation is important, an uncompetitive package will make it highly unlikely for a student – already burdened with undergraduate debt – to enroll in any graduate program. It is critical that our offers be at least marginally competitive with peer institutions if our graduate programs are to attract talented students.

Until 2012, CoS GA stipends were set at a minimum of $3,000 per semester - $6,000 for an academic year. National norms for MS/MA programs in biological sciences are in the range of $12,000 to $18,000 per academic year. During the last full review of this program, I supported a departmental request to increase GA stipends from $3,000 to $4,000 per semester. Though the review was favorable, no additional funds were allocated in support of the program. After reviewing our budgets and expenditures, the college made the decision in FY 2012 to increase the base graduate stipend to $4,500 per semester and to fund the additional costs from CoS lab fees and external grants. The table below shows the approximate annual investments in the BSC graduate stipends from multiple sources, including lab fees and federal grant funds.

University and College Investment in BSC MS/MA Graduate Stipends, 2011-2015.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>State Personnel Fund</th>
<th>College Lab Fee Fund</th>
<th>External Grant Funds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>31,500</td>
<td>12,000</td>
<td>104,999</td>
<td>148,499</td>
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<tr>
<td>2012</td>
<td>70,770</td>
<td>41,615</td>
<td>112,613</td>
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<td>2014</td>
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<td>242,994</td>
</tr>
</tbody>
</table>

The increase in base stipend is reflected in the difference between the 2011 and 2012 total costs. Note that state funding to support graduate stipends had been improving, but has dropped in the last two years in response to cuts in state funding to the institution. At the same time that state funds are being cut, total program costs are increasing in an attempt to remain competitive for quality graduate students. This means that program costs are being shifted to college fees and to external funding agencies. Cost shifting is not inherently bad, but it is being done at a time when college fees may be discontinued in favor of a central budgeting model, and external funding is increasingly difficult to obtain. In fact, the grant that provides the funds reported in this table ends in July of 2015, and continued funding is far from assured. The department and college must have both adequate and stable funding of the graduate program, or it will become impossible to provide the BSC curriculum at the current level of demand, much less support the increased enrollment that the university needs to be financially sound.
The availability of graduate tuition waivers is also of concern for this program. The value of the waivers that the entire college may award has been frozen at the amount of waiver awards in 2009. In addition, individual waivers are no longer permitted to defray the entire cost of tuition – even if a student is given the maximum individual tuition benefit, the benefit does not cover the entire cost to the student. The negative impact of these policies is two-fold. First, it makes the packages that we can offer prospective students even less competitive. Second, because the tuition benefit budget is frozen while tuition continues to rise, the number of graduate students that can be accommodated within the budget is ratcheting downward.

The combination of low stipends and an effectively shrinking tuition budget means that the BSC graduate program is at extreme risk of becoming smaller and being populated by less competitive students. The importance of the BSC MS/MA program to both the teaching and research missions of the department makes this an unacceptable outcome for all Marshall students who take BSC courses, not just those who enroll in the program under review herein. I am, therefore, strongly recommending in favor of continuation of the BSC MS/MA program with identification of the program for resource development.

I make this recommendation for resource development with full knowledge that the department has not maintained an adequate assessment program during the reporting period. I believe that the current chair is capable of improving the departmental assessment program, and I anticipate that improvement in this area will be recommended throughout the program review process. I would argue that resource enhancement be made contingent upon an improved assessment program. I would argue against denying resource enhancement based on assessment deficiencies. This program is too important to the department, the college, and the university to risk its failure due to lack of investment.

Charles Somerville
Signature of the Dean

November 1, 2014
Date
**Resource Requests**

*Additional Personnel Funds.* For the 2015 fiscal year, the state provided $54,000 toward the cost of GA stipends. That amount is sufficient to fund six GA positions for one academic year at the current college minimum rate of $4,500 per semester. The department regularly employs 24 GAs to deliver departmental curriculum. Therefore, the state funds one-fourth of the personnel costs. The department needs at least $216,000 to fill all GA positions at the college minimum rate. The difference between last year’s funding and full, stable funding of the BSC graduate program is $162,000 per year.

Assuming that the college is able to continue supporting the BSC graduate program at the rate of $100,000 per year, the additional amount needed in state personnel funds would be $62,000 per year. This amount would allow the department to continue to operate in the event that the current external funding is not renewed.

To summarize, *BSC is requesting an increase of at least $62,000 per year in personnel funds* to stabilize the graduate program at the current size and stipend level. This amount would not allow for growth of the program or for payment of competitive stipends. It is only the amount needed to maintain the current status.
Marshall University
Program Review

For purposes of program review, the academic year will begin in summer and end in spring.

Program: MS/MA in Biological Sciences

College: Science

Date of Last Review: Academic Year 2009 – 2010

I. CONSISTENCY WITH UNIVERSITY MISSION

The graduate program within the Department of Biological Sciences strives to provide advanced coursework and multidisciplinary/interdisciplinary research and scholarly training for young scientists with diverse backgrounds and career goals. Additionally and most importantly, students are provided with exceptional mentorship, which instills lifelong learning. The rigorous expectations of the program’s faculty provide the students with the tools/skills to enter the workforce capable of contributing significantly to the mission of the employer, enter high quality doctoral research programs or begin training in professional degree programs.

The mission of the College of Science is to instill in its students an understanding and appreciation of the “art” of scholarship; to teach key concepts in the sciences; to emphasize the links between emerging technology and discovery; and to develop a maturity of thought regarding vision and leadership in scientific areas that will better society. The graduate program in Biological Sciences supports the mission by providing both thesis (MS) and non-thesis (MA) students with mentored opportunities to develop meaningful skills. Observing biological phenomena, asking pertinent questions, testing those questions and formulating relevant conclusions is the core of scientific inquiry. With close guidance from graduate faculty, graduate students are coached and guided to cultivate the skills needed to apply the scientific method in their own research projects (primarily MS) and in special topics classes (both MS and MA). Biology graduate students are encouraged to move beyond the mere acquisition of new skills and inspired to construct the next layer of scientific inquiry. These students are confident that they will be able to not only compete in professional school or PhD programs, but excel in their future endeavors. This fills the mission of scholarship. The curriculum also provides graduate students with experience in professional presentations and seminars. Presentation skills are honed in a seminar series that moves students from learning techniques, through supporting ideas with previously published knowledge, to finally presenting their own research to a critical audience. This step-wise training is important for not only
their own advancement, but for the facile dissemination of the department’s research findings to the community. This fills the mission of leadership in the community. Finally, students who graduate from this program have generated new information, new discoveries, and new technologies, which lead to an enhanced reputation for the College of Science and the University. This will also support the expansion of the degree program through increased visibility, grant activity and collaborations.

Marshall’s overall mission is supported by the graduate program in biological sciences. The Department’s graduate students are supported by tuition waivers and stipends supplied by the University and from external grant funding. This supports the Institution’s goal of affordable graduate education while stimulating the regional economy. Because the students are well trained in oral and written dissemination of knowledge, Marshall University’s reputation is growing at national and international scientific venues. The success of this endeavor is evident by recent NSF RII funding and the increased number of accepted publications from the faculty and students of the department.

In summary, the graduate program in the Department of Biological Sciences strongly supports the missions of both its college and institution. The educational experiences are highly affordable, with both TA stipends and tuition waivers offered to many applicants. This program draws a broad range of students since it offers both a research-based thesis MS, which is particularly attractive to students who intend to continue along a research career, and a non-thesis MA, which appeals to students interested in pursuing professional training. Successful graduates are prepared for a true wealth of careers or continuing professional education.

It is important to note that the operation of the Department is dependent upon these students who are, in turn, attracted to MU, in part, due to the availability of tuition waiver benefits. The Department strives for excellence via a mechanism which produces not only new graduates but new knowledge. Few institutions have such outstanding faculty with the breadth of expertise as are found in Biological Sciences. Students can work in areas ranging from the molecular to the organismal, from paleontology to endangered species, from botany to insects. The opportunity to become truly well-rounded, and hence marketable, is readily available. This excellent program has the potential to grow into an outstanding one, yielding products that greatly outweigh the investment that currently supports the program.

II. Adequacy of the Program

1. Curriculum:

   - Both MS and MA degrees require that students, in consultation with their graduate committee, submit a Plan of Study for approval by the Graduate
College Dean before registering for their 12th semester hour. In Biological Sciences, the graduate committee must be assembled by the end of the first academic year and must consist of a minimum of three graduate faculty members, two of whom must be full time members of the Biological Sciences faculty. This allows one member of the student’s committee to be from outside the department and to enhance skills and/or knowledge of the departmental members.

- Candidates for the MS must complete a minimum of 32 hours of coursework, including a maximum of 12 hours of thesis (BSC 681). Introductory Graduate Seminar (BSC 660; 2 Cr.Hr.) and Seminar I (BSC 661; 2 Cr.Hr.) are scheduled during their first year and Seminar II (BSC 662; 1 Cr.Hr.) will be scheduled in at least two subsequent semesters during semesters in which they are actively enrolled in the graduate program. Not more than 6 hours of the seminar series can be used to fulfill the 32 hour requirement. Candidates will complete at least 18 hours in graded BSC electives at the graduate level (which may include BSC 660, 661, 662, and 681). Students may elect to take 6 hours of graduate work in a minor field. Successful completion of the program in Biological Sciences requires a GPA of 3.0 or higher, with no more than 6 credit hours of “C” grades allowed to be applied to the total hours for graduation. All MS students submit a written thesis. Evaluation of student writing focuses on their abilities to demonstrate understanding of scientific content and to clearly communicate their analysis of the information. The departmental goal is that 90% or more of MS students have generated an acceptable thesis within 6 academic semesters. Furthermore, our goal is to have at least 50% of graduate students as co-authors on peer reviewed journal articles within 3 years of graduation. Publishing peer-reviewed articles is the best indication of clear research communication and competitiveness with our peer graduate programs. Graduates of the program will have good written communication skills, an absolute requirement for success in the job market or in further educational efforts. Upon completion of course requirements and the thesis, M.S. candidates must deliver a public seminar based upon the thesis, then successfully “defend” the thesis in a closed session with the thesis committee.

- Students who select the MA option must complete a minimum of 36 hours of graduate coursework. Similar to the requirements for the MS degree, the MA degree requires candidates to schedule Introductory Graduate Seminar and Seminar I during the first year of study with Seminar II being scheduled in at least two subsequent semesters. Not more than 6 hours of the seminar series can be used to fulfill the 36 hour requirement. Candidates will complete at least 18 hours in graded BSC electives at the graduate level (which may include BSC 660, 661, and 662). Students may elect to take 6 hours of graduate work in a minor field. Successful completion of the program in Biological Sciences requires a GPA of 3.0 or higher, with no more than 6 credit hours of “C” grades allowed to be applied to the total hours for graduation. While MA candidates do not conduct thesis research, they are encouraged to participate in Independent Study and/or
Special Problems research projects/courses. These courses provide hands-on experiences unattainable in lecture only classes. These students are encouraged to contribute to journal articles if their program included appropriate research components. MA candidates must pass a comprehensive oral examination administered by the students’ graduate committee of record.

Additionally, the Department of Biological Sciences offers two Areas of Emphasis and a Graduate Certificate in Bioinformatics.

**Area of Emphasis in Organismal, Evolutionary, and Ecological Biology**

Organismal, Evolutionary, and Ecological Biology as an area of emphasis in Biological Sciences will provide participating students with a broad background in biology at the level of the individual organism and above. The anatomy, structure, and function of individual species are stressed, as is the comparative natural history and evolutionary relationships of groups of related organisms. Lastly, the roles of organisms in a broader context is studied via the analysis of ecological relationships. The intent of this area of emphasis is to serve students engaged in natural history studies, students engaged in the assessment of environmental impacts on species and communities, and those focusing on the detailed anatomy, structure, and function of individual organisms both recent and fossil. Students choosing this major will be well-prepared to pursue careers or further education in the environmental sciences, environmental mitigation, resource management, and ecological impact assessment. Others choosing this area of emphasis will be prepared for the study of evolutionary biology, biomechanics, and the natural history of groups of organisms ranging from today’s plants to fossil reptiles and mammals.

**Area of Emphasis in Watershed Resource Sciences**

Watershed Resource Science as an area of emphasis in Biological Sciences will provide participating students with a systematic and integrated approach to the study of water resources as well as the analysis and implementation of the most effective way to assess their quality and manage their use and conservation. In this program, the integration of course offerings in assessment, informatics, and management into traditional and integrated science curricula provides students with the knowledge base necessary to effectively and innovatively assess and manage water resources.

*Admissions Requirements for Watershed Resource Science Area of Emphasis*
- Must be admitted to the BSC master’s degree program;
- Must have a bachelor's degree which includes a minimum of 6 courses from the following disciplines: two courses in mathematics (must include 1 semester of calculus and one semester of statistics); two courses in physical science (physics, chemistry, geology, etc.); and two courses in life science (biology, agronomy, microbiology, etc.).
Degree Requirements for Watershed Resource Science Area of Emphasis

- The curriculum of this program is made up of a research component, a core of required courses, and specialization in either environmental assessment, environmental management, or environmental informatics. Refer to Appendix I for specific course requirements and electives.

Graduate Certificate Program in Bioinformatics

The Marshall University bioinformatics certificate is designed to develop a working understanding of a variety of techniques and methods for analyzing vast amounts of biological data. The source of information may be associated with recent genomic research, but may also include data sets related to other complex biological problems involving such topics as structure modeling, database mining, and visualization. The certificate is designed to complement existing degrees and to suit the needs of students and professionals who want to specialize in the fast-expanding field of bioinformatics. The certificate curriculum is interdisciplinary and includes courses from the College of Science, the College of Information Technology and Engineering, and the Joan C. Edwards School of Medicine. Through completion of the certificate, students will have acquired the necessary skills to analyze and interpret the large data sets using various bioinformatics tools. Students who should apply for the certificate program would be biology, mathematics, chemistry, physics, and medical/biomedical students or medical doctors who desire to acquire skills required to understand bioinformatics methods and technology; computer science students who wish to understand biological concepts that can be analyzed using their programming skills; or health care professionals (medical, pharmaceutical, and agricultural industries) who desire to acquire bioinformatics knowledge relevant to their fields of expertise. Students will earn the certificate by completing 15 credit hours, including 9 credit hours from 3 core courses, 3 credit hours from a first elective course, and another 3 credit hours from a second elective.

Admissions Requirements for Certificate Program in Bioinformatics

1. Both senior-level undergraduate students with overall GPAs of at least 2.75 and graduate students may enroll in the certificate program.
2. Both undergraduate and graduate students must satisfy the following prerequisite requirement: Successful completion (grade of C or better) of MTH 140 or MTH 229, and one of MTH 225, MTH 326, or MTH 345.

In Appendix I, list required courses, elective courses, and total hours required. The list of courses must provide specific course titles and numbers.
2. Faculty:

The Department of Biological Sciences has 24 full time tenured/tenure track faculty. This diverse group has expertise ranging from traditional applied field biology to leading edge bench biology focusing on the cell, molecular and nano- biology controlling life processes. This faculty is highly competent with many being funded by NSF, NIH, and/or National Geographic sources. Currently, tenure is held by 65% of the full time faculty. There are currently 11 (47.8%) professors, 4 (17.4%) associate professors, 7 (30.4%) assistant professors and 1 assistant professor holding a term position. Approximately 80% of the faculty attend regional or national meetings yearly with funding for that travel supplied by their research grants and internal funding from the College and Department (revenue from summer teaching [college] and lab fees [department] are the primary sources of this internal funding). During spring 2009-spring 2010 period we used P/T faculty (including post-doctoral fellows, local teachers and our own graduate students to teach 18 classes, compared with the Fall 2012-Fall 2013 period where we are using P/T instructors to teach only 10 classes. Please see Appendix II for individual faculty data sheets.

3. Students:

a. **Entrance Standards:** Admission to the graduate program in the Department of Biological Sciences is aligned with admission into the Graduate College and eventual acceptance by the Department’s Graduate Program Committee. A Bachelor’s degree from an accredited institution and the GRE exam (general test) are required prior to regular admission. Test scores must be sent by the Education Testing Services and cannot be sent by the applicant. Appendix III contains pertinent data regarding the test scores of admitted students. Students who have not taken the GRE may be admitted provisionally but cannot register until official scores are received. It is expected that the applicants will have a broad range of undergraduate degrees and there are no formal requirements for specific undergraduate courses prior to admission. The minimum GPA for admission is 2.75 (3.00 in biology courses) and a GRE combined score of 1100, if the test was taken before 8/1/2011 and a combined score of 300, if the test was taken after 8/1/2011 for full admission. Students who do not meet these requirements may be provisionally admitted and later formally admitted upon recommendation by their primary faculty advisor. There are two application deadlines each year (April 15 and November 15) and complete application packages (GRE scores, transcripts, three letters of recommendation, and a personal statement of educational and professional goals) are reviewed by the Department Graduate Program Committee. When appropriate and possible, applicants are invited to campus for an interview and tour of the facilities.
b. **Entrance and Exit Abilities of past five years of graduates:**

Appendix III shows that our last five years of graduate students entered the program with undergraduate GPAs that ranged from yearly means of 2.76 to 3.4 for MA students and 3.25 to 3.54 for MS students. The yearly mean GRE Verbal scores ranged from 405 to 495 for MA students and from 483 to 502 for MS students, and the yearly mean GRE Quantitative scores ranged from 480 to 560 for MA students and 532 to 649 for MS students. Appendix IV shows that these graduates also compiled respectable GPAs during their graduate program, with yearly means ranging from 3.26 to 3.88 for MA students and 3.71 to 3.92 for MS students.

4. **Resources:**

**Financial: University and College Investment in BSC MS/MA Graduate Stipends, 2011-2015.**

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<thead>
<tr>
<th>Fiscal Year</th>
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**Facilities:** The Department of Biological Sciences occupies portions of the first three floors in the Science Building, plus three laboratories in the Byrd Biotechnology Science Center. The Science Building was originally constructed in the 1940s, expanded with an annex in the 1970s, and the oldest sections renovated in the early 1990s. There are two 96-seat lecture halls for both undergraduate and graduate classes that are primarily, but not exclusively, used by the department. These lecture halls are classified as TECI 3 rooms and have University-maintained, networked computers, projectors and cameras which allow for projection of digital images, connection with the internet, recording lectures for asynchronous delivery and “skyping” with individuals located anywhere in the world. There are thirteen lab classrooms, three facilities (Greenhouse, Herbarium, Herpetology/Mammology Museum - which collectively provide many of the living organisms and preserved specimens used in our courses), prep labs associated with the lab classrooms, a morphometrics/computer lab (funded in part by the National Science Foundation in the late 1990s), and research lab space for 19 faculty. The labs feature fume hoods, laminar-flow hoods, house deionized water, and other kinds of support appropriate for science courses. Other major shared instrumentation under the Department’s supervision, many of which were funded from external grants, include fluorescence microscopes, micro- and macro-digital imaging equipment, centrifuges, spectrophotometers, and molecular biology equipment. Located outside department space but available for faculty use or collaboration are a scanning electron microscope,
two confocal fluorescence microscopes, mass spectrometer, and nuclear magnetic resonance instrumentation.

5. Assessment Information:

   a. Please refer to Appendix V for the Program's Assessment Plan.

   b. **Plans for Program Improvement:** The most important improvement that the department has initiated is to formalize our assessment activities. Dr. Wendy Tryzna has been named the Coordinator of Assessment Activities/Assessment Czar for the Department. This will move some responsibilities from the Chair to a dedicated “position”. Dr. Tryzna has considerable experience which will provide invaluable for better function of the assessment activities.

   c. **Graduate Satisfaction:** The results of 32 post-thesis defense/oral examination surveys indicate that 31 graduates recorded a 4 or 5, with 5 being strongly agree that the program enhanced their writing, critical thinking and public speaking skills. 1 respondent indicated a better understanding of biology, but no improvement in writing, critical thinking, nor speaking skills were gained from BSC graduate program. Twelve respondents indicated that they had jobs in their area of study, 5 indicated they had been admitted to professional schools, 3 reported having applied to professional school, but had not yet been admitted. Thirteen respondents indicated that they were actively seeking employment in their area of expertise, but had not yet landed a position. One of these graduates was also waiting for a decision on their professional school application (included in the 3 reported above).

   d. The previous five years of evaluations of assessment reports for the MS/MA in Biological Sciences are included in Appendix IX.

6. Previous Reviews:

   At its meeting on April 22, 2010, the Marshall University Board of Governors recommended that the Master of Science/Master of Arts in Biological Sciences continue at its current level of activity.

7. **Identify weaknesses and deficiencies** noted in the last program review and provide information regarding the status of improvements implemented or accomplished.

   In its last program review, submitted in academic year 2009 – 2010, the Master of Science/Master of Arts in Biological Sciences identified the following weaknesses. These are transcribed verbatim from that report.

   “Laboratory space (needs remodeling); Lack of sufficient state funds to equip advanced laboratories, maintain sophisticated equipment or fund faculty and
student travel to national meetings; Poor tracking of graduates; Relatively high teaching loads for faculty, with very limited reassigned time for research without external funding for buyouts. Otherwise, the graduate faculty routinely teaches the same course load as non-graduate faculty: the state/university workload formula does not recognize direction of theses and independent research projects as assigned teaching, although the number of research students remains high and will increase with aggressive student recruiting by new faculty; Current Graduate Teaching Assistantship stipends are $6,000 per academic year, approximately one-half to two-thirds that offered at competing institutions; Students in the MS program do not always participate in research throughout all four academic semesters and summer, in part because of the poor funding status for graduate students; Additional professional lab staff is needed in the department to handle the demands of shared major equipment and a more research intensive graduate program."

Since the last review, the laboratory spaces are being updated as funds become available. S 108 recently underwent a significant remodeling which included removing benches, refinishing floors and redesigning the lab benches to better fit the needs of Dr. Kovatch’s ecological physiology research. The herpetology and mammalogy museum has been completely renovated (NSF grant). While we are not maintaining service contracts on most equipment, we have recently purchased an updated -80F freezer, new ice making equipment, high speed videography equipment, and an autoclave. This was purchased using funds generated from indirect cost recovery from NSF grants held by the department faculty. Teaching loads remain high for research active faculty. Stipends for graduate assistants have been supplemented by the College of Science to $9,000 per academic year. While this is an increase, a portion of the stipend must be used to cover some tuition as the students receive only a partial funding of tuition. This increase does not bring us to a level that is considered competitive by the very best students and we have lost students to other institutions which provide better financial support to those valuable individuals. National norms for MS/MA programs in biological sciences are in the range of $12,000 to $18,000 per academic year.

8. Current Strengths/Weaknesses:

Strengths. The current strengths of this graduate program center around the dedicated faculty. Each member of the graduate faculty contributes many hours of unreimbursed time mentoring students with coursework and research questions. Certainly the overall effectiveness of any program will revolve around the student/mentor relationships. This is a very important strength of the program in Biological Sciences. As we have no PhD program and currently have no post-doctoral fellows, the graduate students get all of their guidance from the faculty themselves. While this increases the faculty workload and in many instances likely decreases their overall productivity, they assume this role with aplomb.
The diversity of the curriculum is also a strength for the overall “health” of the graduate program. Students and faculty alike are exposed to multiple viewpoints and scientific approaches to answering biological questions. While individual research areas may lack a “critical mass” the overall biological experience is enhanced by this programmatic diversity. Lastly, a strength that we share with other departments in the College is the College of Science Instructional Technology Center and its director, James Booth. This group provides exceptional service to all faculty for IT needs, including some support of research computing needs.

**Weaknesses.** Less than adequate state/institutional funds present an obvious challenge (weakness) for this program. Combined with an aging physical plant, this lack of support results in faculty and students using old equipment or overused shared newer equipment for teaching and even research in less than adequate laboratory spaces. Unless service contracts are written into grant proposals, there is little to no maintenance budget for high-end research equipment and no budget for teaching equipment. This results in some otherwise usable equipment needing repair, sitting idle because of the lack of repair funds. The Department has two teaching laboratory coordinators, (Susan Weinstein and Jennifer Strickland), but neither has responsibilities in the graduate courses, leaving the administration of these teaching labs to the graduate faculty. Furthermore, the Department has no technician positions responsible for oversight of research equipment upkeep and repair, forcing this important task upon the faculty. We experience high teaching loads for research active faculty. Graduate faculty teach at the same level as undergraduate faculty, with very little release time provided for the development of research proposals, collection of data, nor for writing the papers. Some grant funds are available for “buyout” funding of teaching release, but these opportunities are few. Graduate stipends are $4,500 per semester with no funding available from the institution over the summer. This results in many/most students not being able to continue projects over the summer without external employment (volunteering to do the research) and/or grant support to pay partial salary while doing summer research.

III. Viability of the Program:

1. **Articulation Agreements:** There are no articulation agreements with other institutions.

2. **Off-Campus Classes:** The graduate program does not offer off-campus classes.

3. **Online Courses:** There are no on-line courses in the graduate program.

4. **Service Courses:** There are no service courses associated with the graduate program.
5. **Program Course Enrollment:** Please refer to Appendix VI for program course enrollments.

6. **Program Enrollment:** Please refer to Appendix VII for program enrollments.

7. The trend line for program enrollment and graduation numbers is provided in Figure 1, which follows Appendix VII.

8. **Enrollment Projections:** Enrollment in BSC graduate programs is expected to stay at about the current level for the next 3-5 years. With the number of faculty available for mentoring students remaining constant and with the uncertainty of funding for the program, the Department does not anticipate increasing recruitment efforts beyond that currently ongoing.

IV. **Necessity of the Program:**

1. **Advisory Committee:** The Graduate Program in Biological Sciences has no external Advisory Committee. All initiatives and strategic plans are endogenous to the graduate faculty.

2. **Graduates:** At this time, the department does not formally track students in terms of places of employment, starting salary ranges, number employed in field of specialization, and/or acceptance into baccalaureate or graduate programs other than by the post-thesis defense/comprehensive oral exam survey. Individual graduate mentors/advisors often keep in touch with former students. Many serve as extended academic/career advisors and scientific colleagues. With the appointment of Dr. Wendy Tryzna as the Assessment “Czar”, BSC will be keeping much better track of our students for assessment proposes.

3. **Job Placement:** The Department does not track formally job placements nor salaries.

VI. **RESOURCE DEVELOPMENT (If applicable)**

Please prepare the following materials:

1) **Program vision and mission statements with a strategic plan to achieve the program’s vision and mission.**

The mission of the Graduate Program in Biological Sciences is to provide up to date training for entry level scientists (Master’s degree). This “training” includes development of scientific thought! The ability to “think” through a problem is essential for the developing scientist. We accomplish this by including the students in the design of experiments, requiring them to collect and analyze data and utilize the body of scientific literature to provide a foundation for the entire process. This research component is carried forth in the 660 seminar series that
both MS and MA students are required to take. The benefit to the non-thesis student is that they have the same science foundation in their training as do the thesis (MS) students.

2) A specification of the resources needed to accomplish the program’s vision, with an evidence-based rationale as why these resources are needed and how they will help the program to accomplish its vision.

The Department of Biological Sciences provides a high quality graduate experience to students, but does so “on a shoe-string”. We are competing for the best student with institutions who can and do offer considerably higher stipends and tuition aid packages. For example Dr. Robert Dailey at WVU replied to my email query of their master’s student aid with the following:

>>> "Mallory, David S" <mallory@marshall.edu> 09/13/12 10:19 AM >>> Dr Dailey Can you tell me what your master's level students get for financial aid? How do you deal with summer salary etc?

"MS stipends in round figures are almost ($16,000 for research assistant, which is 12 months and around ($13,000 for teaching assistant ship, which is 9 months. The TA is placed on research assistant ship for summer the stipend will be raised from 16 to 18 next year. … (this is in addition to a tuition waiver)

We understand that WVU is a Research Intensive institution; however, the competition for students still exists. Institutionally (MU) supplied stipends are $9,000/year plus a partial tuition supplement (our students must pay a portion of their tuition). A small number of students (4) are covered by grant monies (NSF RII funding which currently amounts to $13,500/year). Institutionally funded students are expected to devote 20 hours per week to teaching/tutoring duties in the department. The RII funded students do not have that expectation. As the department needs graduate TA’s to teach introductory laboratory sections in order to keep research active faculty teaching loads at levels where they can be reasonably successful in procuring grant support for research and students. Increased support for the funding of graduate student education would allow the department to focus more on research productivity. This would elevate, not only the faculty, but also the graduate student preparation.

The Department is requesting resource development in order to stabilize the funding of this program. With the pressure of other regional and national institutions offering significantly larger stipends and total tuition waivers, we risk losing good students to these other programs. The current (Fiscal year 2015) state provided funding is $54,000 toward graduate stipends. This is sufficient to fund six GA positions at the current college minimum rate of $4,500/semester. As BSC routinely employs 24 GA’s who contribute significantly to the delivery of the undergraduate curriculum, we need $216,000 to fully fund all GAs at the CoS
minimum rate. The CoS Dean has agreed to support the BSC graduate program at a rate of $100,000 annually. Therefore, the Department of Biological Sciences is requesting an increase in personnel funds of $62,000 to add to the current $54,000 to bridge the $116,000 gap.
Appendix I
Required/Elective Course Work in the Program

Degree Program: MS/MA Biological Sciences

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
<th>Elective Hours</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSC 660 Intro Grad Seminar</td>
<td>2</td>
<td>BSC 501 Ichthyology</td>
<td>12 - 26</td>
<td>Students need not take any courses outside of Biological Sciences. Students may take up to four hours of Independent Study or Special Problems in consultation with their advisor. Students may take six hours of graduate work chosen from a minor field.</td>
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</tr>
<tr>
<td>BSC 661 Seminar I</td>
<td>2</td>
<td>BSC 505 Economic Botany</td>
<td></td>
<td>BSC 585-588 Independent Study</td>
<td></td>
</tr>
<tr>
<td>BSC 662 Seminar II</td>
<td>2</td>
<td>BSC 506 Herpetology</td>
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<td>BSC 650-652 Special Problems</td>
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<td></td>
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<td>BSC 508 Ornithology</td>
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<td>BSC 509 Mammalogy</td>
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<td>BSC 510 Remote Sensing</td>
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<td>BSC 513 Princ of Org Evolution</td>
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<td>BSC 516 Plant Taxonomy</td>
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<td>BSC 517 Biostatistics</td>
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<td>BSC 518 Mycology</td>
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<td>BSC 520 Plant Physiology</td>
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<td>BSC 522 Animal Physiology</td>
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<td>BSC 524 Animal Parasitology</td>
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<td>BSC 525 Biosystematics</td>
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<td>BSC 526 Medical Entomology</td>
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<td>BSC 530 Plant Ecology</td>
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<td>BSC 531 Limnology</td>
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<td>BSC 542 Advanced Microbiology</td>
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<td>BSC 543 Microbial Genetics</td>
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<td>BSC 550 Molecular Biology</td>
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<td>BSC 556 Genes and Development</td>
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<td>BSC 580 SpTp: Intermed Biochem</td>
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<td>BSC 580 SpTp: Biochem/Mass Spec</td>
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<td>BSC 560 Cons Forest Soil Wildlife</td>
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<td>BSC 620-622 Tax Vascular Plants</td>
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<td>BSC 680 SpTp: Adv Ornithology</td>
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<td>BSC 680 SpTp: Cell BioTechnology</td>
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<td>BSC 680 SpTp: Herpetology J Club</td>
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<td></td>
<td></td>
<td>BSC 680 SpTp: Molecular Medicine</td>
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<td></td>
<td></td>
<td>BSC 681 Thesis (up to 12 hr)</td>
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</table>

Professional society that may have influenced the program offering and/or requirements: None
# Appendix I
## Required/Elective Course Work in the Program

Degree Program: **MS/MA in BSC (AOE in Organismal, Evolutionary and Ecological Biology)**  
Person responsible for the report: David Mallory

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
<th>Elective Hours</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
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<tbody>
<tr>
<td>BSC 660 Introductory Graduate Seminar</td>
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<tr>
<td>BSC 662 Seminar II</td>
<td>2</td>
<td>BSC 506 Herpetology</td>
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<tr>
<td>BSC 681 Thesis, up to 12 hrs.</td>
<td>9-12</td>
<td>BSC 508 Ornithology</td>
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<td>BSC 513 Principles of Organic Evolution</td>
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<td>BSC 516 Plant Taxonomy</td>
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<td>BSC 530 Plant Ecology</td>
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<td>BSC 560 Conservation Forest Soil Wildlife</td>
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<td>BSC 610 Advanced Vertebrate Morphology</td>
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<tr>
<td></td>
<td></td>
<td>BSC 620 Taxonomy of Vascular Plants</td>
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</tbody>
</table>

Total Hours of Required Courses: 15-18

Total Hours of Elective Courses: 14-21
# Appendix I

**Required/Elective Course Work in the Program**

Degree Program: MS in BSC (AOE in Watershed Resource Science) 
Person responsible for the report: David Mallory

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours</th>
<th>Elective Credit Required by the Major (By Course Number and Title)</th>
<th>Elective Hours</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
</tr>
</thead>
</table>
| BSC 530 Plant Ecology OR BSC 531 Limnology            | 4                    | Students complete minimum of 32 total credit hours by selecting elective courses from the approved list in one of the following specializations:  
**Assessment**  
| BSC 660 Intro Grad Seminar                            | 2                    |  
| BSC 661 Seminar I                                    | 2                    |  
| BSC 662 Seminar II                                   | 2                    |  
| BSC 681 Thesis                                       | 1-6                  |  
| ES 660 Environmental Law I                           | 3                    |  
| PS 580 SpTp: Bioassessment                           | 4                    |  
| Graduate GIS                                         | 3                    |  

Total Hours of Required Courses | 21-26 |

Total Hours of Elective Courses | 6-11 |

Professional society that may have influenced the program offering and/or requirements: **None**
## Appendix I
### Required/Elective Course Work in the Program

**Degree Program:** MA in BSC (AOE in Watershed Resource Science)

**Person responsible for the report:** David Mallory

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
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<th>Elective Credit Required by the Major (By Course Number and Title)</th>
<th>Elective Hours</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
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<tbody>
<tr>
<td>BSC 530 Plant Ecology OR BSC 531 Limnology</td>
<td>4</td>
<td>Students complete minimum of 32 total credit hours by selecting elective courses from the approved list in one of the following specializations:</td>
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<td>BSC 585 Independent Study</td>
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<td>ES 600, 602, 603, 604, 609, 614, 620, 640, 654, 655, 656, 660, 661, 662, 663, 665, 674; GEO 510, 514, 55, 516, 517, 518; HST 503, 524, 540, 600; HUMN 530, 602; MGT 500, 502; PLS 500, 501, 502, 510, 511, 521, 530, 531, 540; PSC 533, 550, 552, 554</td>
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<td>ES 660 Environmental Law I</td>
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<td>Environmental Informatics</td>
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<tr>
<td>PS 580 SpTp: Bioassessment</td>
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<td>BSC 510, 511; ES 605, 610, 626, 630; GEO 529, 530; PS 510, 511</td>
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<tr>
<td>Graduate GIS</td>
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</tbody>
</table>

**Total Hours of Required Courses:** 23

**Total Hours of Elective Courses:** 13
Name: Dr. Brian Leslie Antonsen
Rank: Associate Professor

Start Date at Marshall as a Faculty Member: August 17, 2007

Status: Tenured

Highest Degree Earned: Ph D Date Degree Received: 1999
Conferring Institution: University of Victoria, Victoria, BC, Canada

Area of Degree Specialization: Biology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (*Expand the table as necessary*)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Response</th>
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</thead>
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<td>BSC 228</td>
<td>Human Physiology</td>
<td>24 100%</td>
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<td>Spring 2014</td>
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<td>Human Physiology</td>
<td>22 100%</td>
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<tr>
<td>Spring 2014</td>
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<td>22 100%</td>
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<td>BSC 581</td>
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<td>Course Title</td>
<td>Percentage</td>
<td>Grade</td>
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<tr>
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<td>BSC 660</td>
<td>Intro Grad Seminar</td>
<td>13 50%</td>
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<tr>
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<td>Principles of Biology</td>
<td>27 100%</td>
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</tr>
<tr>
<td>Fall 2012</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
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<td>100</td>
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<tr>
<td>Fall 2012</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>28 100%</td>
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</tr>
<tr>
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<td>Principles of Biology</td>
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<tr>
<td>Fall 2012</td>
<td>BSC 120</td>
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<tr>
<td>Spring 2012</td>
<td>BSC 228</td>
<td>Human Physiology</td>
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<td>100</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 228</td>
<td>Human Physiology</td>
<td>27 100%</td>
<td>100</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 228</td>
<td>Human Physiology</td>
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<td>100</td>
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<tr>
<td>Spring 2012</td>
<td>BSC 228</td>
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<td>23 100%</td>
<td>100</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 661</td>
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<td>21 50%</td>
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</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 482</td>
<td>SpTp:Th Meth Mammalian Jt Ctrl</td>
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<td>Fall 2011</td>
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<td>Fall 2011</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>27 100%</td>
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<tr>
<td>Fall 2011</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>28 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>28 100%</td>
<td>100</td>
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<tr>
<td>Fall 2011</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>28 100%</td>
<td>100</td>
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</tbody>
</table>

**NOTE:** Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

**Contracts, Grants and Sponsored Research**

Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.

Antonsen, B. L. (Principal), Grant, "Neurotoxicology of Atrazine and its Derivatives", Marshall (NSF Sub Award), Marshall University, $65,000.00, Funded. (July 20, 2012 - December 20, 2013).


Antonsen, B. L. (Principal), Grant, "Attend Society for Neuroscience Annual Meeting", Marshall, Marshall University, $500.00, Funded. (October 20, 2012).


Antonsen, B. L. (Principal), Grant, "RUI: Modulation of a Reflex Escape Circuit.", NSF, Federal, $250,000.00, Not Funded. (January 12, 2012).

Antonsen, B. L. (Principal), Grant, "2011 Technician Request", West Virginia HEPC, State, $23,154.00, Funded. (March 1, 2011 - August 31, 2011).

**Presentations**
Antonsen, B. L. (Author Only), Starkey, C. B. (Presenter & Author), Forrester, K. E. (Presenter & Author), Poster, Association of Southeastern Biologists Annual Meeting, Association of Southeastern Biologists, Charleston WV, "Subthreshold toxic effects of the herbicide Atrazine on learning and behavior in Procambarus clarkii, Red Swamp Crayfish", Conference, Academic, Regional, Accepted.


Antonsen, B. L. (Author Only), Brewer, H. (Presenter & Author), Lyons, A. R. (Presenter & Author), Blake, M. (Presenter & Author), Poster, Sigma Xi Research Day, Marshall chapter of Sigma Xi, Huntington, WV, USA, "Biomechanics of the Praying Mantis strike", Conference, Academic, Local, Accepted. (May 3, 2013).


Antonsen, B. L. (Author Only), Mummert, A. (Presenter & Author), Brewer, H. (Presenter & Author), Blake, M. (Author Only), Lyons, A. R. (Author Only), Poster, Undergraduate Research Conference at the Interface of Biology and Mathematics,, National Institute for Mathematical and Biological Synthesis, Knoxville, TN, USA, "Biomechanical Modeling of the Praying Mantis Strike.", Conference, Academic, National, Accepted. (November 17, 2012).


Research Currently in Progress
Antonsen, Brian L, "Biochemical Pathways that Underlie Synergistic Modulation", On-Going, Scholarly.
Antonsen, Brian L, Mummert, Anna, "Biomechanics of the Praying Mantis Strike", On-Going, Scholarly.
Antonsen, Brian L, "Familiarity Confers Transient Benefits Among Crayfish", Writing Results, Scholarly.
Antonsen, Brian L, "Synergistic Modulation of an Escape Circuit", Writing Results, Scholarly.

Directed Student Learning and Research
Perez, E., Research, Supervised Research, Biological Sciences Department, BSC, 485, 2 credit hours, "Influences of toxins on zebrafish behavior", In-Process. (August 30, 2013 - Present).
Lockhart, T., Research, Supervised Research, Chemistry Department, "Influences of toxins on zebrafish behavior", In-Process. (August 30, 2013 - Present).
Adkins, S., Research, Master's Thesis Committee Chair, Biological Sciences Department, BSC, "Toxicological effects on escape behavior", In-Process. (August 20, 2013 - Present).
Lyons, A., Research, Supervised Research, Biological Sciences Department, "Insect Biomechanics", In-Process. (January 1, 2013 - Present).

Lefevre, A., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Crayfish neurotoxicology", In-Process. (August 30, 2012 - Present).

Boggs, K., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Crayfish neurotoxicology", In-Process. (August 30, 2012 - Present).

Adkins, K., Learning, Master's Thesis Committee Member, Biological Sciences Department, "River ecology", In-Process. (August 20, 2012 - Present).


Starkey, C., Research, Master's Thesis Committee Chair, Biological Sciences Department, BSC, "Toxicological deficits of learning", In-Process. (August 20, 2011 - Present).

Milhoan, B., Learning, Master's Thesis Committee Member, Biological Sciences Department, "Role of Calcium in transducing neural excitability changes", In-Process. (August 20, 2011 - Present).

Patel, P., Learning, Master's Thesis Committee Member, Biological Sciences Department, "Role of Calcium in transducing neural excitability changes", In-Process. (August 20, 2011 - Present).

Blake, M., Research, Supervised Research, Biological Sciences Department, "Biomechanical simulation of the knee", In-Process. (August 16, 2011 - Present).

Hayes, A., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Functional distribution of serotonin and dopamine", Completed. (January 10, 2012 - May 5, 2013).

Pauley, M., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Functional distribution of serotonin and dopamine", Completed. (January 10, 2012 - May 3, 2013).

Forester, K., Research, Supervised Research, Biological Sciences Department, BSC, "Toxicological deficits of learning", Completed. (August 20, 2012 - May 2, 2013).

Hayes, A., Research, Supervised Research, Biological Sciences Department, BSC, 485, 2 credit hours, "Neuroanatomy and immunocytochemistry", Completed. (August 20, 2012 - December 20, 2012).

Pauley, M., Research, Supervised Research, Biological Sciences Department, BSC, 485, 2 credit hours, "Neuroanatomy and immunocytochemistry", Completed. (August 20, 2012 - December 20, 2012).

Wallace, T., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Functional distribution of serotonin and dopamine", Completed. (August 20, 2012 - December 20, 2012).

Lyons, A., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Insect Biomechanics", Completed. (May 15, 2012 - December 20, 2012).

Blake, M., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Insect Biomechanics", Completed. (May 15, 2012 - December 20, 2012).

Williams, A., Learning, Master's Thesis Committee Chair, Biological Sciences Department, "Role of Calcium in transducing neural excitability changes", In-Process. (August 20, 2011 - December 20, 2012).

Maniskas, M., Learning, Master's Thesis Committee Member, Biological Sciences Department, "Role of Calcium in transducing neural excitability changes", Completed. (August 20, 2010 - December 20, 2012).

Lyons, A., Research, Supervised Research, Biological Sciences Department, BSC, 482, 2 credit hours, "Methods in Mammalian Joint Control", Completed. (January 5, 2012 - May 1, 2012).

Blake, M., Research, Supervised Research, Biological Sciences Department, BSC, 482, 2 credit hours, "Methods in Mammalian
Joint Control”, Completed. (January 5, 2012 - May 1, 2012).


Adkins, B., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, "Release distribution of serotonin in the lateral giant system”, Completed. (January 2, 2011 - May 16, 2011).

LeMasters, C., Research, Supervised Research, Biological Sciences Department, "Role of Calcium in transducing neural excitability changes”, Completed. (January 2, 2011 - May 16, 2011).

Fields, E., Research, Supervised Research, Biological Sciences Department, "Release distribution of serotonin in the lateral giant system”, Completed. (January 2, 2011 - May 16, 2011).

O'Toole, W., Research, Supervised Research, Chemistry Department, "Stress and escape reactions”, Completed. (January 2, 2011 - May 16, 2011).

2) Service

Department
Marshall Biology Web Page, Committee Chair, (January 1, 2013 - Present).

Marshall Neuroscience Club, Faculty Mentor, (August 20, 2012 - Present).

Graduate, Committee Member, (January 1, 2011 - Present).

Recruiting and Outreach, Committee Chair, (January 1, 2011 - July 1, 2013).

Dean's NSF Road Map Committee, Committee Member, (July 20, 2012 - January 30, 2013).

College
Dean's NSF Road Map Committee, Committee Member (January 30, 2013 - Present).

University
Marshall Animal Care and Use Committee, Committee Member (January 1, 2011 - Present).

Professional letters of reference, Faculty Mentor (January 1, 2013 - December 31, 2013).

Next Generation Sequencing & Bioinformatics Forum, Program Organizer (September 15, 2011 - October 30, 2011).

iPED Workshop - Improving Professional Development for Graduate Students, Guest Speaker (August 16, 2011).

Professional
Brain Behavior and Evolution, Reviewer, Journal Article (September 1, 2011 - Present).

National Science Foundation, Reviewer, Grant Proposal, Arlington, Virginia, USA (February 1, 2011 - Present).


Community
Spring Valley High School/TREK program, Outreach activities, Wayne Co, WV, USA (May 20, 2011 - Present).

Marshall Brain Awareness Program, co-Director and co-Founder (January 1, 2011 - Present).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
Society for Toxicology, SOT, Leading organization for researchers studying all aspects of toxicology. (September 10, 2013 - Present).

Faculty for Undergraduate Neuroscience, FUN, Society for professors of undergraduate neuroscience course, including those who wish to begin a course. (January 1, 2011 - Present).

International Society for Neuroethology, Leading society covering the study of how the nervous system controls behavior. (January 1, 2011 - Present).


Faculty Development Activities Attended


Conference Attendance, "Faculty for Undergraduate Neuroscience Meeting", Faculty for Undergraduate Neuroscience, New Orleans, LA, USA. (October 15, 2012).


4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.

Awards and Honors
Student Organization Advisor of the Year, Division of Student Affairs, (May 5, 2013).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Anne C Axel
Start Date at Marshall as a Faculty Member: August 17, 2012
Status: Probationary
Highest Degree Earned: Ph D Date Degree Received: 2011
Conferring Institution: Michigan State University, East Lansing, MI
Area of Degree Specialization: Fisheries and Wildlife; Ecology, Evolutionary Biology and Behavior

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Response</th>
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<td>Principles of Biology</td>
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<tr>
<td>Spring 2014</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
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<tr>
<td>Spring 2014</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>27 100%</td>
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<tr>
<td>Spring 2014</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>28 100%</td>
<td>100</td>
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<tr>
<td>Fall 2013</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>23 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>24 100%</td>
<td>100</td>
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<td>Fall 2013</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>23 100%</td>
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<tr>
<td>Fall 2013</td>
<td>BSC 121</td>
<td>Principles of Biology</td>
<td>24 100%</td>
<td>100</td>
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<tr>
<td>Fall 2013</td>
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<td>Remote Sensing and GIS Applications</td>
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<tr>
<td>Fall 2013</td>
<td>PS 510</td>
<td>Remote Sensing w Applications</td>
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<td>Fall 2013</td>
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<td>Remote Sensing/GIS Appl</td>
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<td>Summer 2013</td>
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<td>PS 411</td>
<td>Image Processing/Modeling</td>
<td>1 50%</td>
<td>50</td>
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<tr>
<td>Spring 2013</td>
<td>PS 511</td>
<td>Image Processing/Modeling</td>
<td>4 50%</td>
<td>50</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

**Contracts, Grants and Sponsored Research**

Axel, A. C. (Principal), Rankin, L. (Co-Principal), Grant, "USING REMOTE SENSING TO MEASURE THE ECOLOGICAL INTEGRITY OF NON-INTACT TROPICAL DRY FORESTS OF SOUTHERN MADAGASCAR", NASA Graduate Research Fellowship Program, Marshall University, $12,000.00, Funded. (May 2013 - December 2013).

Axel, A. C., Grant, "Quinlan Endowment Fund for Faculty Travel", Marshall University, Marshall University, $500.00, Funded. (August 2013).

Axel, A. C., Grant, "Marshall University Summer Research Award", Marshall University, Marshall University, $2,000.00, Funded. (July 2013 - August 2013).

**Intellectual Contributions**


**Presentations**

Axel, A. C. (Presenter & Author), Oral Presentation, University Education in Natural Resources Conference, Colorado State University, Ft. Collins, CO, "Incorporating film, television, and photographs into the natural resources curriculum: using visual texts to create virtual field trips, provide historical perspective, and construct case studies that underscore the "voices" of stakeholders", Conference, Academic, National, Accepted.


Rankin, L. (Presenter & Author), Axel, A. C. (Author Only), Poster, Sigma Xi, Marshall University, Huntington, WV, "Assessing ecological integrity of grazed and ungrazed tropical dry forests through soundscape analysis", Other, Academic, Local, peer-reviewed/refereed, Accepted. (May 3, 2013).

Parsons-White, A. (Presenter & Author), Axel, A. C. (Author Only), Poster, Sigma Xi, Marshall University, Huntington, WV,

Rankin, L. (Presenter & Author), Axel, A. C. (Author Only), Poster, Association of Southeastern Biologists, Marshall University, Charleston, WV, "Assessing ecological integrity of grazed and ungrazed tropical dry forests through soundscape analysis", Conference, Academic, Regional, peer-reviewed/refereed, Accepted. (April 12, 2013).


Research Currently in Progress
Axel, Anne C, Lyndsay Rankin, "Comparing acoustic indices of soundscapes across a dry forest gradient", Writing Results, Scholarly.


Axel, Anne C, "GPS tracking of livestock in Malagasy dry forests", On-Going, Scholarly.

Axel, Anne C, "Random forest classification of tropical dry forests in and around Beza Mahafaly Special Reserve, Madagascar", Writing Results, Scholarly.

Directed Student Learning and Research
Davis, R., Research, Master's Thesis Committee Chair, Physics & Physical Science Department, Proposal. (August 2013 - Present).

Tuggle, T., Research, Master's Thesis Committee Member, Biological Sciences Department, Proposal. (August 2013 - Present).

Arneson, E., Research, Master's Thesis Committee Chair, Biological Sciences Department, Proposal. (March 15, 2013 - Present).

White, A., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (January 2013 - Present).

Edwards, E., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (January 2013 - Present).

Herrick, K., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (January 2013 - Present).

Legg, S., Research, Supervised Research, Yeager Scholars Department, "Acoustic detection of the endangered West Virginia northern flying squirrel", In-Process. (September 2012 - Present).

Rankin, L., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Assessing ecological integrity of grazed and ungrazed tropical dry forests through soundscape analysis", In-Process. (August 2012 - Present).

Reinhardt, A., Research, Master's Thesis Committee Chair, Physics & Physical Science Department, "PREDICTING ANTHROPOGENIC STREAMBED SHIFTS IN BECKLEY, WEST VIRGINIA, MODELED OVER 15 YEARS USING LANDSAT TM AND DEMS", Completed. (February 1, 2013 - December 2013).

Turley, A., Research, Master's Thesis Committee Member, Physics & Physical Science Department, "Suitability of low cost commercial off-the-shelf aerial platforms and consumer grade digital cameras for small format aerial photography", Completed. (September 2012 - November 30, 2012).

2) Service

College
NASA WV Space Grant Consortium Advisory Committee, Committee Member (October 2013).
Teaching lab upgrade (September 2012 - December 2012).

**University**
INTO Marshall University, Student Recruiter (April 29, 2013).
INTO Marshall University, Student Recruiter (April 29, 2013).
INTO Marshall University, Student Recruiter (April 27, 2013).
INTO Marshall University, Student Recruiter (April 26, 2013).
INTO Marshall University, Student Recruiter (April 22, 2013).
INTO Marshall University, Student Recruiter (April 21, 2013).

**Professional**
Center for the Integration of Research, Teaching, and Learning (CIRTL), Presenter on CIRTLCast online discussion, Madison, WI, United States (November 4, 2014).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Memberships**
Society for Conservation GIS, SCGIS, An organization that assists conservationists worldwide in using GIS. (February 2014 - Present).
American Society for Photogrammetry and Remote Sensing, ASPRS, "Our mission is to promote the ethical application of active and passive sensors, the disciplines of photogrammetry, remote sensing, geographic information systems, and other supporting geospatial technologies; to advance the understanding of the geospatial and related sciences; to expand public awareness of the profession; and to promote a balanced representation of the interests of government, academia, and private enterprise.". (January 1, 2014 - Present).
International Association of Landscape Ecology, US-IALE, "Foster landscape ecology in the United States and promote interdisciplinary research and communication among scientists, planners, and other professionals concerned with landscape ecology.". (January 2014 - Present).
Association for the Study of Literature and Environment, ASLE. (January 2012 - December 2012).
The American Association for the Advancement of Science, AAAS. (January 2012 - December 2012).

**Faculty Development Activities Attended**
Workshop, "Fall 2013 FYS Training Institute", Center for Teaching and Learning, Marshall University, Huntington, WV, USA. (October 19, 2013 - January 5, 2014).
Workshop, "Remote Data Acquisition Sensor Training Workshop", Sevilleta Field Station at the University of New Mexico, Socorro, New Mexico. (June 16, 2013 - June 22, 2013).
Continuing Education Program, "IACUC Curriculum Basic Course", Collaborative Institutional Training Initiative (CITI), Huntington, WV, USA. (October 22, 2012).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.

**Awards and Honors**

Pickens-Queen Teacher Award, Marshall University, (December 15, 2013).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Eric R Blough       Rank: Associate Professor

Start Date at Marshall as a Faculty Member: August 17, 2003

Status: Tenured

Highest Degree Earned:          Date Degree Received: 

NOTE: Dr. Blough was a member of the Department of Biological Sciences during the review period. He is now a faculty member in the School of Pharmacy, but has adjunct status with the Department of Biological Sciences and mentors BSC grad students.

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<thead>
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<th>Title</th>
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<th>% Respon</th>
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<td>Human Physiology</td>
<td>22</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Intellectual Contributions


Presentations


Research Currently in Progress


2) Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II  
Faculty Data Sheet  
(Information for the period of this review)  
August 1, 2009 - December 31, 2014

Name: Dr. Victor Fet  
Rank: Professor  
Start Date at Marshall as a Faculty Member: August 28, 1995  
Status: Tenured  
Highest Degree Earned: Ph D  
Date Degree Received: 1984  
Conferring Institution: Academy of Sciences, St. Petersburg, Russia  
Area of Degree Specialization: Zoology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. *(Expand the table as necessary)*

<table>
<thead>
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<th>Title</th>
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<td>28 100%</td>
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<tr>
<td>Fall 2013</td>
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<td>Principles of Biology</td>
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<td>100</td>
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<td>26 100%</td>
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<td>25 100%</td>
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</tr>
<tr>
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Note: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Intellectual Contributions


**Presentations**


**Research Currently in Progress**
Fet, Victor, "Biodiversity and Biogeography of Greece".


Fet, Victor, "Scanning Electron Microscopy of Cuticular Sensory Organs".

**Directed Student Learning and Research**
Neff, D., Learning, Master's Thesis Committee Member, Biological Sciences Department.


2) **Service**

**Department**
Faculty Development, Committee Member, (2011 - Present).

Promotion & Tenure, Committee Member, (January 2013 - December 2013).

**College**


**University**
Promotion & Tenure, Committee Member (January 2012 - December 2012).

**Professional**
Professional journals, reviewer, Reviewer, Journal Article (January 2012 - December 2012).

Euscorpius, Editor, Journal Editor, Huntington, WV, USA (November 2001 - December 2012).

Guggenheim Fellowship, Reviewer, Grant Proposal, New York, NY, USA (December 2011).


Fulbright / CIES, Reviewer, Grant Proposal, Washington, DC, USA (September 2011).

3) **Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.**

**Professional Memberships**
American Arachnological Society.

Linnean Society London.

4) **Awards/honors (including invitations to speak in your area of expertise) or special recognition.**

**Awards and Honors**
Fulbright Scholar Award, CIES, (April 2011).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name:  Dr. Philippe Georgel  
Rank:  Professor  

Start Date at Marshall as a Faculty Member:  August 17, 2002

Status:  Tenured  

Highest Degree Earned:  Ph D  
Date Degree Received:  1993

Conferring Institution:  Oregon State University, Corvallis, OR

Area of Degree Specialization:  Biochemistry and Biophysics

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<td>Introduction to Biology</td>
<td>25 100%</td>
<td>100</td>
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<tr>
<td>Fall 2013</td>
<td>BSC 104</td>
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<td>24 100%</td>
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<td>Molecular Biology</td>
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</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Georgel, P. (Co-Principal), Sollars, V. (Principal), "Dietary fatty acids as a preventative strategy in acute myelogenous leukemia", NIH, Federal.
Georgel, P. (Co-Principal), Grant, "Center for Biomedical Research Excellence in Nutrition and Cancer", NIH COBRE program, Federal, $10,351,786.00, Not Funded.

Georgel, P. (Principal), Grant, "Coordinated epigenetic regulation of gene expression by sulforaphane as a visually detectable biomarker in prostate cancer cells", NIH, Federal, $959,884.00, Currently Under Review.

Georgel, P. (Supporting), Grant, "Epigenetic link between Endometriosis and Epithelial ovarian cancer", NIH COBRE program, Federal, Currently Under Review.

Georgel, P. (Supporting), Grant, "miRNA editing and adipocyte aging", NIH, Federal, Not Funded.

Georgel, P. (Principal), Wilson, J. (Co-Principal), Grant, "Sulforaphane-responsive microRNAs modulate epigenetic events in prostate cancer cells.", NIH, Federal, $384,999.00, Not Funded.

Georgel, P. (Supporting), Song, X. (Principal), "MRI: ACQUISITION OF A FIELD EMISSION SCANNING TRANSMISSION ELECTRON MICROSCOPE FOR MULTIDISCIPLINARY RESEARCH AND EDUCATION AT WEST VIRGINIA UNIVERSITY", NSF, Federal, Currently Under Review.

Georgel, P. (Supporting), Sponsored Research, "NSF RII Road map", NSF, Federal.

Georgel, P. (Principal), Grant, "Epigenetic Marker Involved in Diet-related Maternal Genomic Imprinting in Breast Cancer", Department of Defense, Breast cancer Program, Federal, $780,000.00, Funded. (October 1, 2010 - September 30, 2013).


**Intellectual Contributions**

Georgel, P., Abbas, A., Hall, J. A., Patterson, W. L., Ho, E., Al-mulla, F. Epigenetic regulations modulated by sulforaphane modulate telomerase activity in prostate cancer cell lines. *PLOS One*.


Georgel, P., Abbas, A., Schell, B. P. *Role of Human Leukocyte Antigen G (HLA-G) in Breast Cancer Pathogenesis*. BCB.


Presentations


Georgel, P. (Presenter & Author), Oral Presentation, Marshall University School of Medicine, Huntington WV, "Investigating the complex interplay between diet, epigenetics, and cancer", Seminar, Academic, Local, Invited. (September 4, 2012).


Georgel, P. (Coordinator/Organizer), Poster, Cell Differentiation and Development Center Symposium, Marshall University, Huntington, WV, "Epigenetic links between maternal consumption of omega-3 fatty acid and breast cancer risk in offspring.", Conference, Academic, Regional. (March 23, 2012).


Research Currently in Progress

Han, Hyoil, Georgel, Philippe, "Controversial Topics Mining", On-Going, Scholarly.


Georgel, Philippe, "Role of HLA-G in breast cancer", On-Going, Scholarly.

Georgel, Philippe, William Patterson, W. Elaine Hardman, "Role of maternal diet rich in omega-3 fatty acid on breast cancer in offspring", On-Going, Scholarly.

Georgel, Philippe, Frank Lutz, Marlee Ng, Juan Ausio, "Role of MeCP2 in the Rett syndrome", On-Going, Scholarly.


Directed Student Learning and Research

Adkins, S., Research, Master's Thesis Committee Member, Biological Sciences Department, Proposal. (November 4, 2013 - Present).

Schell, B., Research, Master's Thesis Committee Member, Biological Sciences Department, "Female steroid hormone activity effects on expression of transcription factors KLF10 and ETS 2 in meningioma tumorigenesis". (January 2012 - Present).

Patel, P., Learning, Master's Thesis Committee Member, Biological Sciences Department, BSC, "M.A.", In-Process. (November 30, 2011 - Present).

Ray, K., Research, Dissertation Committee Member, Biomedical Sciences Department, Proposal. (September 1, 2011 - Present).

Mick, H., Research, Master's Thesis Committee Chair, Biological Sciences Department, BSC, 681, In-Process. (August 15, 2011 - Present).

Milhoan, B., Learning, Master's Thesis Committee Member, Biological Sciences Department, BSC, 681, In-Process. (August 15, 2011 - Present).

Starkey, C., Research, Master's Thesis Committee Member, Biological Sciences Department, BSC, 681, Proposal. (August 15, 2011 - Present).

Hamden, J. A., Research, Master's Thesis Committee Member, Biological Sciences Department, BMS, 681, In-Process. (June 1, 2011 - Present).
Hall, J. A., Research, Doctoral Advisory Committee Chair, Biomedical Sciences Department, BMS, 20 credit hours, "Role of CHD1 and CHD2 in salivary gland differentiation", In-Process. (January 15, 2004 - Present).

Rogers, S., Research, Master's Thesis Committee Member, Biomedical Sciences Department, Completed. (December 9, 2013).

Hussain, D., Research, Doctoral Advisory Committee Member, Biochemistry Department. (August 2013).

Patterson, W., Research, Master's Thesis Committee Chair, Biomedical Sciences Department, "Breaking the cycle: the role of omega-3 polyunsaturated fatty acids in inflammation-driven cancers", Completed. (January 1, 2010 - April 30, 2013).

Fet, E., Research, Master's Thesis Committee Chair, Biological Sciences Department, BSC, 681, 12 credit hours, "Ohio River Phylogeography Study", In-Process. (June 1, 2009 - March 15, 2013).

Lutz, F., Research, Dissertation Committee Chair, Biomedical Sciences Department, BMS, 6 credit hours, "Identification of molecular determinants for MeCP2 binding", In-Process. (January 1, 2012 - December 31, 2012).


Dean, R., Learning, Supervised Teaching Activity, Biological Sciences Department, BSC, 485, "Gene Therapy", Completed. (January 27, 2011 - May 18, 2011).

Van Horn, A., Research, Capstone Research, Chemistry Department, CHM, 491, 2 credit hours, "CHARACTERIZATION OF THE CHROMATIN BINDING ABILITY OF A TRUNCATED CHD2 VARIANT", Completed. (August 20, 2010 - February 15, 2011).

2) Service

Graduate Student Committee (Biomedical Science, MUSOM), Committee Member, (August 15, 2011 - Present).

Biology Curriculum Committee, Committee Member, (August 15, 2009 - Present).

University

Academic Planning, Chairperson (September 1, 2013 - Present).

Grade Appeal Board, Committee Member (August 15, 2012 - September 1, 2013).

Budget and Academic Policies, Committee Chair (August 15, 2009 - September 1, 2013).

Grade Appeal Board, Committee Chair (August 15, 2010 - August 15, 2012).

Professional


Biochemistry and Cell Biology, Reviewer, Journal Article, Canada.

Biochimica and Biophysica acta, Reviewer, Journal Article, USA.

Cancer Letters, Reviewer, Journal Article, USA.
Molecular Cancer, Reviewer, Journal Article, USA.

Nucleic Acids Research, Reviewer, Journal Article, USA.

PLOS One, Reviewer, Journal Article.

CDDC, Workshop Organizer, Huntington, WV, USA (October 27, 2011 - Present).

Biochemistry and Cell Biology, Editor, Associate Editor, Canada (July 30, 2009 - Present).

Biophysical Society, Member (January 1, 2009 - Present).

Cell Differentiation and Development Center, Coordinator of the CDDC Seminar Series program, Huntington, WV, USA (July 15, 2007 - Present).

Australian Research Council, Reviewer, Grant Proposal, Australia (January 15, 2004 - Present).

Sigma-Xi Scientific Research Society, Member, USA (June 1, 2003 - Present).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Memberships**

Biophysical Society, Biophysical Society, member, Promote biological research involving biophysical methods. (January 1, 2009 - Present).

Australian Research Council, ARC, Reviewer, Support Australian Research. (January 1, 2009 - Present).

Sigma-Xi Scientific Research Society, Sigma-Xi, member, Promote scientific research. (June 1, 2003 - Present).

**Faculty Development Activities Attended**

Continuing Education Program, "Training for Critical Thinking courses", Marshall University, Huntington, WV, USA.

Seminar, "International Asilomar Chromatin and Chromosome Conference", Pacific Grove, CA, USA.

Seminar, "Investigating the complex interplay between diet, epigenetics, and cancer", University of Manitoba, Winnipeg, Canada. (August 14, 2013 - Present).

Seminar, "HLA-G expression used as a marker for breast cancer", International Asilomar Chromatin and Chromosome Conference, Pacific Grove, CA, USA. (December 14, 2012 - Present).

Seminar, "The role of chromatin higher-order structure in the activation of MMTV promoter. "., Institut de Genetique et de Biologie Moleculaire et Cellulaire, Strasbourg, France. (June 21, 2012 - Present).

Seminar, "Novel interactions between two similar chromatin remodelers contribute to a phenotypical switch in mouse salivary gland", Babraham Institute, Cambridge, UK (Wales). (June 14, 2012 - Present).


Conference Attendance, Undergraduate Research Day at the Capitol, Charleston, WV, USA. (January 2012 - Present).


Seminar, "Chromatin stability at low concentration depends on histone octamer saturation levels", 20th International AUC conference, San Antonio, TX, USA. (March 27, 2012 - March 31, 2012).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Emily Laura Gillespie
Rank: 

Start Date at Marshall as a Faculty Member: August 17, 2012

Status: Probationary

Highest Degree Earned: Ph D Date Degree Received: 2010

Conferring Institution: Wake Forest University, Winston-Salem, NC

Area of Degree Specialization: Biology, Plant systematics

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research
Gillespie, E. L. (Principal), Grant, "MU-Advance Path Forward", Marshall University, Marshall University, $1,250.00, Currently Under Review. (September 22, 2014 - Present).
Gillespie, E. L. (Principal), Grant, "NASA Space Grant", NASA, Marshall University, $1,250.00, Currently Under Review. (September 22, 2014 - Present).


Gillespie, E. L. (Co-Principal), Payne, K. T. (Co-Principal), Grant, "Investigations into the putative tetraploid azalea, Rhododendron calendulaceum", Society for Systematic Biology, Other, $1,300.00, Funded. (August 3, 2014 - Present).


Gillespie, E. L. (Principal), Grant, "NASA Space Grant", NASA, Marshall University, $1,230.00, Currently Under Review. (September 30, 2013).

**Intellectual Contributions**


**Presentations**


Payne, K. T. (Author Only), Gillespie, E. L., Oral Presentation, Association of Southeastern Biologists Annual meeting, Association of Southeastern Biologists, Spartanburg, SC, "Using herbarium informatics to revise county-based distributions of the Ericaceae
throughout West Virginia”, Conference, Academic, Regional, Accepted. (April 3, 2014).


Gillespie, E. L., Oral Presentation, University of Virginia/ Mountain Lake Biological Station, Pearisburg, VA, "21st century systematics: Going beyond tree-building in the Rhododendron family (Ericaceae)", Seminar, Academic, Local, Accepted. (May 24, 2012).


Research Currently in Progress

Gillespie, Emily L, Diego Fajardo, Juan Zalapa, Kathleen Kron, "Chloroplast Evolution within the heather family (Ericaceae)", On-Going, Scholarly.


Gillespie, Emily L, Zack Murrell, "Examination of phylogenetic relationships and species boundaries within the North American dogwoods (Cornaceae: Cornus)", Writing Results, Scholarly.

Gillespie, Emily L, Andrea Hart, Courtney Kramer, Elizabeth Segrest, "Examination of putative hybrid species of moss heathers (Ericaceae: Cassiope)", On-Going, Scholarly.

Gillespie, Emily L, Krystal (KT) Payne, "Genetic structure and hybrid parentage of flame azalea, Rhododendron calendulaceum", Planning, Scholarly.


Gillespie, Emily L, Andrew Hart, "Preliminary phylogenetic investigations into the Labrador Teas (Ericaceae: Rhododendron: Ledum)", On-Going, Scholarly.

Directed Student Learning and Research

Payne, K., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Genetic structure and hybrid origin of flame azalea, Rhododendron calendulaceum", In-Process. (August 26, 2013 - Present).

O'Neal, K., Learning, Supervised Teaching Activity, "Herbarium curation", In-Process. (August 26, 2013 - Present).


Hart, A., Research, Supervised Research, Biological Sciences Department, "Phylogenetic investigation of labrador tea (Ericaceae: Ledum species)», In-Process. (October 2012 - Present).

Roles, M., Research, Directed Individual/Independent Study, Biological Sciences Department, BSC, 485, 2 credit hours, "Introduction to molecular systematic laboratory", Completed. (January 13, 2014 - May 2, 2014).


Snyder, M., Learning, Supervised Teaching Activity, Health Professions Department, "Basic herbarium curation", Completed. (September 1, 2012 - December 6, 2012).

2) Service

Department

Collections Committee, Committee Member, (September 1, 2014 - Present).

Graduate Committee, Committee Member, (January 24, 2013 - Present).

College

Environment & Plant Diversity Committe (temp name), Committee Member (November 2012 - Present).

University Herbarium, Curator of the Marshall University Herbarium (August 17, 2012 - Present).

Job Search Committee: Education & Outreach Coordinator for the NSF RII, Committee Member (November 2012 - December 2012).

Professional

Society of Herbarium Curators, Social media manager (September 2014 - Present).

Association of Southeastern Biologists, Social media manager (March 2014 - Present).

Association of Southeastern Biologists Conservation Committee, Committee Member (July 2013 - Present).

Society of Herbarium Curators Internal Auditing Committee, Committee Member (April 2011 - Present).
Society of Herbarium Curators Membership Committee Chair, Committee Chair (April 2011 - Present).


iDigBio, Workshop Organizer, Boise, ID, USA (April 2014 - August 2014).

Association of Southeastern Biologists, Session Chair, Spartanburg, South Carolina, United States (April 3, 2014 - April 4, 2014).


Association of Southeastern Biologists Annual Meeting Arrangements Committee Local Chair, Committee Chair (October 2012 - May 2013).

Association of Southeastern Biologists, Session Chair, Charleston, West Virginia, United States (April 11, 2013 - April 12, 2013).

American Society of Plant Taxonomists, Reviewer, Journal Article (March 2013).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
American Society of Plant Taxonomists, ASPT, The American Society of Plant Taxonomists promotes research and teaching of taxonomy, systematics, and phylogeny of vascular and nonvascular plants. Organized in 1935, the Society has a membership of over 1300. The Society publishes several publications, supports funds for a variety of honorary and charitable activities, and conducts scientific meetings each summer.

Botanical Society of America, BSA, Botanical Society of America (BSA) is a "not-for-profit" 501 (c) (3) membership society whose mission is to: promote botany, the field of basic science dealing with the study and inquiry into the form, function, development, diversity, reproduction, evolution, and uses of plants and their interactions within the biosphere. To accomplish this mission, the objectives of The Society are to: sustain and provide improved formal and informal education about plants; encourage basic plant research; provide expertise, direction, and position statements concerning plants and ecosystems; and foster communication within the professional botanical community, and between botanists and the rest of humankind through publications, meetings, and committees.

Southern Appalachian Botanical Society, SABS, In 1935 The Southern Appalachian Botanical Club was formed at West Virginia University for "all persons interested in the botany of the Southern Appalachian Mountains." Today, the name and purpose has changed slightly to the Southern Appalachian Botanical Society (SABS) with its focus on the botany of the eastern states. The membership includes professional and amateur botanists from across the country who are interested in eastern botany, in the journal, and in the activities of the society.

North American Network of Small Herbaria, NANSH, This organization is devoted to issues particular to 'small' herbaria--those under 100,000 specimens. We work to share information, write publications and grants, and hold workshops. (November 2013 - Present).

West Virginia Native Plant Society, WVNPS, The West Virginia Native Plant Society (WVNPS) is a non-profit organization open to people who are learning about West Virginia's native plants and their habitats. We are dedicated to the conservation of the state's native flora. (October 2012 - Present).

Society of Herbarium Curators, SHC, Chairperson, Membership Committee, SHC is a forum for discussion, collaboration and action related to promoting herbaria and other biological collections as important tools of scientific research and education. (April 15, 2011 - Present).

Association of Southeastern Biologists, ASB, Annual Meeting Arrangements Committee (AMAC), ASB strives to provide an atmosphere that is collaborative, collegial, and open to all disciplines. The strength of ASB is dependent on both diversity in biological sub-field interests, as well as diversity in those individuals involved in those sub-fields. We welcome scholarly and applied work from the many diverse disciplines of the biological sciences. Subject areas include, but are not limited to, floristic & plant systematics, entomology, invertebrate zoology, community & population ecology, evolutionary biology, conservation biology,
microbiology, genetics, cell & molecular biology, as well as scientific pedagogy. (October 1, 2012 - May 31, 2013).

**Faculty Development Activities Attended**


Tutorial, "Lifecycle of Grant", MURC, Huntington, WV, USA. (September 27, 2013).

Self-Study Program, "Computational Molecular Evolution", Technical University of Denmark, Copenhagen, Denmark, 6 credit hours. (June 24, 2013 - August 15, 2013).


Workshop, "iDigBio Botany 2012 Digitization Workshop", iDigBio and ASPT, Columbus, OH, USA. (July 13, 2012).


4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Frank S Gilliam
Rank: Professor

Start Date at Marshall as a Faculty Member: August 27, 1990

Status: Tenured

Highest Degree Earned: Ph D
Date Degree Received: 1983

Conferring Institution: Duke University, Durham, NC

Area of Degree Specialization: Plant Ecology, Forest Ecology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<td>Principles of Ecology</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research
Schultz, G. E. (Co-Principal), Gilliam, F. S. (Co-Principal), Grant, "Effects of excess nitrogen on above and below ground interactions in a hardwood forest biogeochemical linkages of overstory, herbaceous layer, and microbial communities.", NSF,
Federal, Currently Under Review.

**Intellectual Contributions**


**Presentations**


**Directed Student Learning and Research**

Murphy, P., Research, Capstone Experience, Biological Sciences Department, BSC, 3 credit hours, "Effects of temperature on net nitrification in nitrogen-saturated soils", Completed. (September 2010 - January 2011).

**Service**

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Memberships**

Ecological Society of America, ESA, Program Director, 2010 Annual Meeting.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.

**Awards and Honors**

Marshall University Distinguished Artists & Scholars Award, Marshall University, (May 2012).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Marcia Ann Harrison-Pitaniello
Rank: Professor

Start Date at Marshall as a Faculty Member: September 01, 1986

Status: Tenured

Highest Degree Earned: Ph D Date Degree Received: 1983

Conferring Institution: University of Michigan, Ann Arbor, Michigan

Area of Degree Specialization: Botany

Professional Registration/Licensure: Human Research Curriculum Completion Report

Field of Registration /Licensure: Human Research Curriculum Completion Report

Agency: Marshall University IRB2

Date Obtained, Expiration Date Obtained: August 16, 2010, Expired: December 31, 2014

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

| Term/Year | Course  | Title                          | Enrolled | % Resp
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<td>Principles Cell Biology</td>
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<td>Principles Cell Biology</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Saken, J. M. (Co-Principal), Murray, E. E. (Principal), Maynard, A. S. (Co-Principal), Beckelhimer, S. (Co-Principal), Harrison-Pitaniello, M. A., Grant, "RISE- Rural Innovations in Science Education", NASA, Federal, $500,000.00, Currently Under Review. (December 2012 - Present).

Kovatch, J. J. (Co-Principal), Harrison-Pitaniello, M. A. (Principal), Mummert, A. (Co-Principal), Sanyal, S. (Co-Principal), Collier, P. S. (Co-Principal), Grant, "Enhancing undergraduate training through participation in biological and mathematical research at Marshall University", NSF Undergraduate Biology and Mathematics/RUI, Federal, $280,000.00, Funded. (September 2010 - Present).


Harrison-Pitaniello, M. A. (Principal), Grant, "NSF: ADVANCE Institutional Transformation Award: Advancing women in science, math and engineering at Marshall", NSF, Federal, $1,200,000.00, Funded. (September 1, 2006 - August 2009).

Intellectual Contributions


Presentations

Harrison-Pitaniello, M. A. (Presenter & Author), Mummert, A. (Presenter & Author), Kovatch, J. J. (Presenter & Author), Other, iPED Teaching Conference: Inquiring Pedagogies, CTL Marshall University, Huntington, WV, "So I Won't Do That Again: Student and Mentor (Great) Expectations in Undergraduate Research", Conference, Academic, peer-reviewed/refereed, Accepted. (August 19, 2014).

Harrison-Pitaniello, M. A. (Presenter & Author), Mummert, A. (Author Only), Kovatch, J. J. (Author Only), Sarra, S. (Author Only),


Harrison-Pitaniello, M. A. (Presenter & Author), Poster, Botany 2012, Botanical Society of America, Columbus, Ohio, "Imaging Plant Growth: A tool to enhance student learning in plant physiology at all levels.", Conference, Academic, National. (July 10, 2012).


Research Currently in Progress

Directed Student Learning and Research
Brown, M., Master's Thesis Committee Chair, Biological Sciences Department.

Mick, H., Learning, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (August 2011 - 2013).


2) Service

Department

Greenhouse, Committee Chair.

SCORES exam - Cell Biology/Genetics, oversee an exam for SCORES, (January 2, 2012 - Present).

Graduate Program Committee, Committee Member, (September 2011 - Present).

Faculty Development, Committee Chair, (August 2010 - Present).

Microbiology Search Committee, Committee Member, (September 2013 - December 2013).


Botany Search Committee, Committee Chair, (February 2012 - April 2012).

Microbiology Search Committee, Committee Chair, (January 2011 - July 2011).

College

SURE Fellowship Selection Committee, Attendee, Meeting (January 2010 - Present).

University

MU Institutional Biological Safety Committee, Committee Member (September 2011 - Present).

MU Chapter of Phi Kappa Phi, Communications Officer (November 2010 - Present).

MU Chapter of Sigma Xi, Chairperson (July 2007 - Present).

Marshall Chapter of the WV NASA Space Grant Consortium, Committee Chair (September 2001 - Present).

Writing Across the Curriculum, Committee Member (August 1999 - Present).

MU-ADVANCE, Faculty Mentor (August 2011 - May 2012).

CITE Dean Search Committee, Committee Member (January 2012 - March 2012).

Retention Committee, Committee Member (May 15, 2011).

Dialogues on Faculty Diversity, Guest Speaker (February 18, 2011).

Professional

Journal of Microbiology and Biology Education, Reviewer, Ad Hoc Reviewer (September 6, 2013 - Present).

American Society for Space and Gravitational Research, Governing Board Member (November 2011 - Present).

West Virginia Academy of Science, Communications Director (July 1997 - Present).


NASA, Reviewer, Grant Proposal, Crystal City, VA (February 20, 2013 - February 21, 2013).

WV Leadership Team member to review the Next Generation Science Standards, Committee Member, Charleston, WV, USA (January 2012 - November 2012).

National Science Foundation, Reviewer, Grant Proposal, Arlington, VA, USA (October 15, 2012 - October 17, 2012).

Marshall University, wrote letters for faculty and students (August 2011 - May 2012).

Environmental and Experimental Botany (journal), Reviewer, Journal Article (March 2012).

WV Space Grant Consortium Grant, Workshop Organizer, Huntington, WV (January 2012).


WV Space Grant Consortium Grant Workshop, Workshop Organizer (January 21, 2011).

Community
WV eMentoring, mentor and scientist (January 2012 - Present).

SCORES Cell Biology Exam, Competition supervisory, Huntington, WV, USA (March 31, 2012 - April 2013).

Huntington Community Gardens, MU liaison (February 2010 - 2012).


Presented "Plant Movies" at Barboursville Science Day, Guest Speaker, Barboursville, WV, USA (April 12, 2012).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
Sigma Xi, President of Marshall University Chapter.

American Society for Gravitational and Space Research, ASGSB, Board of Directors member, 2011-2013. (July 1, 1994 - Present).


Botanical Society of America, BSA. (September 16, 2011 - 2014).

American Society of Plant Biologists, ASPB. (December 30, 2014).

Phi Kappa Phi, PKP. (November 2010 - December 30, 2014).

Association for Women in Science, AWIS. (December 30, 2013).

Council on Undergraduate Research, CUR. (December 30, 2013).

Faculty Development Activities Attended

Conference Attendance, "Marshall University iPED Teaching Conference", MU Center for the Advancement of Teaching and Learning, Huntington, WV, USA, 0 credit hours. (August 21, 2012).


Conference Attendance, "The 3rd Annual Conference on Teaching and Learning", CTL-Marshall University, Huntington, WV, USA, 0 credit hours. (August 16, 2011).


4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.

Awards and Honors
2012 BEN Scholar, National Science Digital Library (NSDL) Biological Sciences Pathway., (January 2012).

Distinguished Service Award, Marshall University, (April 2011).
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. James E Joy
Rank: Professor

Start Date at Marshall as a Faculty Member: August 28, 1972
Status: Tenured

Highest Degree Earned:
Date Degree Received:
Conferring Institution:
Area of Degree Specialization:

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (*Expand the table as necessary*)

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**NOTE:** Part-time adjunct faculty do not need to fill in the remainder of this document.

1. **Scholarship/Research**
   
   **Intellectual Contributions**

**Appendix II**  
**Faculty Data Sheet**  
(Information for the period of this review)  
August 1, 2009 - December 31, 2014

Name:  Jeffrey J Kovatch  
Rank:  Assistant Professor

Start Date at Marshall as a Faculty Member:  January 02, 2009

Status:  Probationary

Highest Degree Earned:  Ph D  
Date Degree Received:  2008

Conferring Institution:  Syracuse University, Syracuse, NY

Area of Degree Specialization:  Biology, Animal Physiological Ecology

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List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. *(Expand the table as necessary)*

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<td>Human Physiology</td>
<td>24 100% 100</td>
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<td>Spring 2014</td>
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</table>
NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Kovatch, J. J. (Co-Principal), Waldron, J. (Principal), Grant, "Testing bioclimatic thresholds of reptiles predicted by maximum energy entropy theory", Department of the Army, Federal, $105,000.00, Currently Under Review. (November 2013 - Present).

Kovatch, J. J. (Co-Principal), Grant, "Modeling the fate and effects of emerging contaminants: computational science at the intersection of chemistry, biology and the environment.", WV EPSCoR, Federal, $8,500,000.00, Currently Under Review. (July 2013 - Present).

Kovatch, J. J. (Co-Principal), Harrison-Pitaniello, M. A. (Principal), Mummert, A. (Co-Principal), Sanyal, S. (Co-Principal), Collier, P. S. (Co-Principal), Grant, "Enhancing undergraduate training through participation in biological and mathematical research at Marshall University", NSF Undergraduate Biology and Mathematics/RUI, Federal, $280,000.00, Funded. (September 2010 - Present).


Kovatch, J. J., Grant, "Community Grant for the Fourpole Creek Watershed Association in Huntington, WV", West Virginia Dept of Environmental Protection, State, $3,785.00, Funded. (October 2013 - June 2014).


Kovatch, J. J. (Co-Principal), Grant, "Studying fossil energy power and pollutant generation and resulting interactions of chemistry, biology, and the environment", Department of Energy, Federal, $4,000,000.00, Not Funded. (August 2013).

Kovatch, J. J. (Co-Principal), Trzyna, W. C. (Principal), Schultz, G. E. (Co-Principal), Grant, "Using next-generation sequencing to explore the microbial diversity of the Ohio River", Illumina, Inc., Private, $125,000.00, Not Funded. (October 15, 2012).


Kovatch, J. J. (Principal), Sponsored Research, "Estimation of spatial homogeneity of phytoplankton in a large temperate river", Faculty Senate, Marshall University, $2,000.00, Funded. (June 2012 - August 2012).

Kovatch, J. J. (Principal), Grant, "Adaptive interspecific variation in metabolism and internal microbial flora in coexisting Unionids", NSF Research Infrastructure Improvement (RII), Marshall University, $15,600.00, Funded. (June 2011 - December 2011).

Kovatch, J. J. (Supporting), Somerville, C. (Principal), El-Shazly, A. E. (Supporting), Kolling, D. (Supporting), Grant, "Appalachian Water Resources Institute", NIST Construction Grant Program, Federal, $9,000,000.00, Not Funded. (April 2011 - 2011).

Kovatch, J. J. (Supporting), Drum, R. J. (Principal), Grant, "Pilot Studies Responses to Climate Change: Formulating Climate Change Mitigation/Adaptation Strategies through Regional Collaboration with the Ohio River Basin Alliance", US Army Corps of Engineers, Federal, $200,000.00, Not Funded. (2011).

Kovatch, J. J. (Principal), Somerville, C. (Co-Principal), Barrios, J. d. D. (Co-Principal), Grant, "Detection of phytoplankton biomass in large rivers with remote sensing", NASA WV Space Consortium RIG, State, $30,000.00, Funded. (April 2010 - December 2011).

Kovatch, J. J. (Principal), Barrios, J. d. D. (Co-Principal), Grant, "The detection of phytoplankton biomass and the tracking of phytoplankton blooms in a large, temperate and turbid waterway, the Ohio River", DigitalGlobe 8-Band Research Challenge, Private, $5,000.00, Funded. (August 2010 - September 2011).

Kovatch, J. J. (Principal), Sponsored Research, "Interspecific variation in metabolic rates of freshwater mussels", Faculty Senate, Marshall University, $2,000.00, Funded. (June 2011 - August 2011).

Kovatch, J. J. (Principal), El-Shazly, A. E. (Co-Principal), Grant, "Developing a timetable of elemental contamination in streams by measuring selenium concentrations in freshwater mussel shells", NASA WV Research Enhancement Award, Marshall University, $6,000.00, Funded. (2009 - 2010).

Kovatch, J. J. (Principal), Sponsored Research, "Estimation of phytoplankton biomass in the Ohio River using satellite based remote sensing", Faculty Senate, Marshall University, $2,000.00, Funded. (June 2010 - August 2010).

Kovatch, J. J. (Co-Principal), Somerville, C. (Principal), Evans, D. K. (Co-Principal), Jones, T. G. (Co-Principal), Contract, "Habitat Improvement Structure Assessment on Kanawha River, WV", US Army Corps of Engineers:, Federal, $130,000.00, Funded. (January 2009 - November 2009).

**Intellectual Contributions**


Kovatch, J. J. Increased average body temperature does not affect growth rate in young altricial nestlings: A test of a general growth model under field conditions using Troglodytes aedon. *Journal of Experimental Biology*.


**Presentations**

Harrison-Pitaniello, M. A. (Presenter & Author), Mummert, A. (Presenter & Author), Kovatch, J. J. (Presenter & Author), Other, iPED Teaching Conference: Inquiring Pedagogies, CTL Marshall University, Huntington, WV, "So I Won’t Do That Again: Student and Mentor (Great) Expectations in Undergraduate Research", Conference, Academic, peer-reviewed/refereed, Accepted. (August 19, 2014).


Hamrick, J. J. (Presenter & Author), Kovatch, J. J. (Author Only), Poster, Undergraduate Capstone Conference at the Mathematical Biosciences Institute, Mathematical Biosciences Institute, Columbus, OH, "Modeling productivity within a light-attenuating turbulent system", Conference, Academic, National. (August 2013).

Moats, T. (Presenter & Author), Castle, M. (Author Only), Cogar, S. J. (Author Only), Kovatch, J. J. (Author Only), Poster, Undergraduate Capstone Conference at the Mathematical Biosciences Institute, Mathematical Biosciences Institute, Columbus, OH, "The metabolic theory of ecology as displayed by the respiration rate of aggregated mussels", Conference, Academic, National. (August 2013).

Hamrick, J. J. (Presenter & Author), Kovatch, J. J. (Author Only), Poster, Joint Meeting of the West Virginia and Ohio Chapters of the American Fisheries Society, Association of Southeastern Biologists, Charleston, WV, "Vertically homogenous phytoplankton concentrations within the Greenup Pool of the Ohio River", Conference, Academic, Regional. (May 2013).


Kovatch, J. J. (Coordinator/Organizer), Schultz, G. E. (Author Only), Oral Presentation, Joint Meeting of the West Virginia and Ohio Chapters of the American Fisheries Society, American Fisheries Society, Huntington, WV, "Comparative effects of surface mining on microbial biodiversity in conjoined river tributaries of the Mud River in southern West Virginia.", Conference, Academic, Regional. (February 2013).

Hamrick, J. J. (Presenter & Author), Kovatch, J. J. (Author Only), Poster, Joint Meeting of the West Virginia and Ohio Chapters of the American Fisheries Society, American Fisheries Society, Huntington, WV, "Vertically homogenous phytoplankton concentrations within the Greenup Pool of the Ohio River", Conference, Academic, Regional. (February 2013).

Clements, M. C. (Presenter & Author), Kovatch, J. J. (Author Only), Paper, Meeting of the Association of Southern Biologist, Association of Southeastern Biologists, Athens, GA, "The integrated effect of photoperiod and temperature on metabolic rate in the freshwater mussel Pyganodon grandis". (April 2012).

Clements, M. C. (Presenter & Author), Kovatch, J. J. (Author Only), Paper, Meeting of the Mid-Atlantic Chapter of the Ecological Society of America, Ecological Society of America, Blacksburg, VA, "Metabolic response of the freshwater mussel Pyganodon grandis to alterations in temperature and photoperiod". (April 2012).


Schultz, G. E. (Author Only), Kovatch, J. J. (Presenter & Author), Trzyna, W. C. (Author Only), Poster, Northeast Fish and Wildlife


Price, M. A. (Presenter & Author), Mumment, A. (Author Only), Kovatch, J. J. (Author Only), Poster, Sigma Xi Research Day, Marshall University, Huntington, WV, "Data analysis of respiratory rates of freshwater mussels in declining oxygen conditions.". (April 2012).


Lefevre, F. H. (Author Only), Kovatch, J. J. (Presenter & Author), Poster, Sigma Xi Research Day, Marshall University, Huntington, WV, "Dropping weight increases the accuracy of mass and metabolic rate estimation in the freshwater mussel, Pyganodon grandis.". (April 2012).

Lefevre, F. H. (Presenter & Author), Kovatch, J. J. (Author Only), Poster, West Virginia Academy of Sciences/STaR Symposium, West Virginia Academy of Sciences, Institute, WV, "Dropping weight increases the accuracy of mass and metabolic rate estimation in the freshwater mussel, Pyganodon grandis.". (April 2012).


Kovatch, J. J. (Presenter & Author), Paper, Joint Meeting of the Virginia and West Virginia Chapter of the American Fisheries Society, American Fisheries Society, Berkley Springs, WV, "What can organismal resource allocation theory tell us about growth


Price, M. A. (Presenter & Author), Kovatch, J. J. (Author Only), Mummert, A. (Author Only), Poster, Summer Undergraduate Research Experience Presentations, Marshall University, Huntington, WV, "Data analysis of respiratory rates of freshwater mussels in declining oxygen conditions", Other, Academic, Local, Accepted. (2011).

Lefevre, F. H. (Presenter & Author), Kovatch, J. J. (Author Only), Poster, Summer Undergraduate Research Experience Presentations, Marshall University, Huntington, WV, "Effect of time out of water on non-lethal prediction of soft tissue mass for the freshwater mussel, Pyganodon grandis", Other, Academic, Local, Accepted. (2011).

Research Currently in Progress
Schultz, Gary E, Kovatch, Jeffrey J, "Bacterial Diversity Twelvepole Creek", Writing Results, Scholarly.

Directed Student Learning and Research
Levin-Nielsen, E., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (January 2014 - Present).

Tuggle, T., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (September 2013 - Present).

Phelps, S., Research, Supervised Research, Biological Sciences Department, In-Process. (May 2013 - Present).

Starkey, C., Research, Master's Thesis Committee Member, Biological Sciences Department. (November 2012 - Present).

Breakfield, D., Research, Master's Thesis Committee Member, Biological Sciences Department, Proposal. (November 2012 - Present).

Jones, S., Learning, Master's Thesis Committee Member, Biological Sciences Department. (November 2012 - Present).

Castle, M., Research, Supervised Research, Biological Sciences Department, "Testing clustering effect of mussels on metabolic rates", In-Process. (September 2012 - Present).

Castle, M., Research, Supervised Research, Mathematics Department, In-Process. (January 2012 - Present).

Adkins, K., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (October 2011 - Present).

Stephenson, D., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (September 2010 - Present).

Clements, M., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (September 2010 - Present).

Cogar, S., Research, Supervised Research, Mathematics Department, In-Process. (May 2013 - May 2014).

Moats, T., Research, Supervised Research, Biological Sciences Department, In-Process. (May 2013 - May 2014).

Hamrick, J., Research, Supervised Research, Biological Sciences Department, "Estimated phytoplankton biomass and primary

Kinsey, M., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (January 2008 - 2013).

Tabassum, S., Learning, Supervised Teaching Activity, Biological Sciences Department, BSC, 121 H, 4 credit hours, In-Process. (January 2013 - May 2013).

Lewis, R., Research, Undergraduate Honors Thesis, Biological Sciences Department, Completed. (January 2010 - April 2013).

Lefevre, F., Research, Supervised Research, Biological Sciences Department, BSC, 492, 2 credit hours, "Dropping weight increases the accuracy of mass and metabolic rate estimation in the freshwater mussel, Pyganodon grandis.", In-Process. (May 2011 - December 2012).

Robert, M., Research, Supervised Research, Geography Department, Completed. (May 2012).


Calderwood, B., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, Completed. (November 2010 - August 2011).

Boone, L., Research, Master's Thesis Committee Member, Biological Sciences Department. (September 2010 - May 2011).

Decker, D., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, Completed. (June 2010 - May 2011).

Midkiff, K., Research, Supervised Research, Biological Sciences Department, BSC, 491, Completed. (May 2010 - May 2011).

Holmes, B., Research, Master's Thesis Committee Chair, Geology Department, Completed. (January 2010 - May 2011).

Dodson, B., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours, Completed. (May 2009 - April 2011).

Vargo, E., Research, Master's Thesis Committee Member, Physics & Physical Science Department. (September 2010 - December 2010).

Efaw, L., Research, Supervised Research, Biological Sciences Department. (May 2010 - September 2010).

Felix, B., Research, Supervised Research, Geology Department. (January 2010 - May 2010).

Ackison, L., Research, Supervised Research, Biological Sciences Department, BSC, 491, 2 credit hours. (September 2007 - May 2010).


2) Service

**Department**

Undergraduate Curriculum Committee, Committee Member, (2010 - Present).

Smith-Goodno Fellowship Award Committee, Committee Chair, (March 2009 - Present).

Greenhouse Committee, Committee Member, (January 2009 - Present).

Outreach Committee, Committee Member, (October 2010 - 2013).

Remote Sensing Faculty Position Search Committee, Committee Chair, (March 2012 - May 2012).

Equity Program Training, Attendee, Meeting, (March 6, 2012).

Microbiologist Term-position Search Committee, Committee Member, (February 2011 - April 2011).

Ecology Reading Group, Founder and director, (2009).
College
Student Poster Judge, Student Poster Judge (December 2013).


Outreach Coordinator Search Committee, Committee Member (2012).

Eminent Scholar Search Committee, Committee Member (December 2010 - April 2011).

University
Alpha Phi Omega HY Chapter - Coed national service fraternity, Student Org Advisor (Non-Professional Org) (2009 - Present).

American Fisheries Society, MU student chapter, Student Org Advisor (Professional Org) (January 2008 - Present).

Alpha Phi Omega - Coed national service fraternity, Guest Speaker (November 2013).

Guest Speaker (April 24, 2013).

Campus Conversations: The Art of Changing the Brain, Attendee, Meeting (February 28, 2012).

Brain Expo, Guest Speaker (2011).

Biotech Incubator and Applied Engineering Complex (BIAEC) Planning and Design Committee, Committee Member (July 2011 - October 2011).

Attendee, Graduation (May 2011).

Ad Hoc Work Group on Faculty Scholarly Achievement, Committee Member (2009).

Marshall University Sweat Equity Day, Task Force Member (October 2009).

Professional
Ohio River Basin Alliance Climate Change Workgroup, Member (2012 - Present).


WV/OH Joint Chapter Meeting of the American Fisheries Society, Conference-Related, Huntington, WV, USA (October 2012 - February 2013).


American Fish and Wildlife Society, Attendee, Meeting, Charleston, WV, USA (April 2012).


Symposium of the Ohio River Basin Consortium for Research and Education, Attendee, Meeting, Huntington, WV (September 2011).

Symposium of the Ohio River Basin Consortium for Research and Education, Session Chair, Huntington, WV (September 2011).


Joint Meeting of the Virginia and West Virginia Chapters of the American Fisheries Society, Attendee, Meeting, Berkley Springs, WV, USA (February 2011).


West Virginia Water Conference: Water Resources Threats and Opportunities, Attendee, Meeting, Morgantown, WV, USA (October 2010).

American Physiological Society Intersociety Meeting: Global Change and Global Science: Comparative Physiology in a Changing World, Attendee, Meeting, Denver, CO, USA (August 2010).


Highlands Summit and West Virginia Chapter Meeting of the American Fisheries Society, Attendee, Meeting, Davis, WV, USA (March 2010).

American Fisheries Society WV/KY Meeting, Program Coordinator, Huntington, WV, USA (2009).


Community
Dine and Discover Lecture Series, Chairperson, Huntington, WV (November 2010 - Present).

Fourpole Creek Watershed Group, Chairperson, Huntington, WV (2010 - Present).

Girl Scouts of America, Workshop Organizer, Huntington, WV (2013).

Boy Scouts of America, Guest Speaker, Huntington, WV, USA (April 2013).


Southside Elementary College of Science and Industry on Wheels, Guest Speaker, Huntington, WV (September 20, 2011).

Explore the Ohio River Program, Cabell County Public Library, Guest Speaker, Huntington, WV (2010).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
Society for Freshwater Science, SFS. (April 2013 - Present).

American Fisheries Society, AFS, Faculty Advisor, Faculty advisor for Marshall Chapter, member of WV state chapter. (2008 - Present).

Society for Integrative and Comparative Biology, SICB. (2008 - Present).


American Association for the Advancement of Science, AAAS. (2003 - Present).

Cooper Ornithological Society. (2002 - Present).
**Faculty Development Activities Attended**


Conference Attendance, "Meeting of the Association of Southeastern Biologists", Association of Southeastern Biologists, Charleston, WV, USA. (April 2013).

Conference Attendance, "Joint Meeting of the West Virginia and Ohio Chapters of the American Fisheries Society", West Virginia Chapter of the American Fisheries Society, Huntington, WV, USA. (February 2013).

Conference Attendance, "Ohio River Valley Mollusk Meeting", Ohio River Valley Mollusk Group, California, KY, USA. (November 2012).


Faculty Fellowship, "First Year Seminar Faculty Training", Center for the Advancement of Teaching and Learning Marshall University. (January 2012 - May 2012).


Tutorial, "Digital Measures information system training", Marshall University Instructional Technology Dept., Huntington, WV, USA, 0 credit hours. (January 20, 2012).

Conference Attendance, "SD1 Site Visit by Marshall University", SD1, Fort Wright, KY. (2011).


4) **Awards/honors (including invitations to speak in your area of expertise) or special recognition.**

**Awards and Honors**

Create Huntington’s Annual Community Member Recognition, Create Huntington, (April 2, 2013).

Create Huntington’s Annual Community Member Recognition, Create Huntington, (March 22, 2012).
Appendix II
Faculty Data Sheet
August 1, 2009 - December 31, 2014

Name: Dr. Nicola LoCascio
Rank: Associate Professor

Start Date at Marshall as a Faculty Member: August 17, 1998
Status: Tenured

Highest Degree Earned: Ph D Date Degree Received: 1984
Conferring Institution: Univ. of North Carolina - Chapel Hill, Chapel Hill, NC

Area of Degree Specialization: Immunogenetics

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<th>Course</th>
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<tr>
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<td>Principles of Genetics</td>
<td>25 100%</td>
<td>100</td>
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<td>Fall 2013</td>
<td>HON 480</td>
<td>SpTp: Conquering Smallpox</td>
<td>18 100%</td>
<td>100</td>
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<tr>
<td>Fall 2013</td>
<td>HON 292</td>
<td>Yeager Seminar III</td>
<td>6 50%</td>
<td>50</td>
</tr>
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<td>Spring 2013</td>
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<td>Second Year Seminar</td>
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<td>Spring 2012</td>
<td>HON 480</td>
<td>SpTp: Bubonic Plague</td>
<td>15 100%</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
National Association of Fellowship Advisors, NAFA. (2012 - Present).

Phi Kappa Phi. (May 2011 - Present).

American Association of Colleges and Universities, AAC&U. (January 2011 - Present).

National Collegiate Honors Council, NCHC. (January 2011 - Present).
National Science Teachers Association, NSTA. (January 2007 - Present).

American Association of Immunologists, AAI. (January 1985 - Present).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. David S. Mallory
Rank: Professor

Start Date at Marshall as a Faculty Member: August 28, 1989

Status: Tenured

Highest Degree Earned: Ph D
Date Degree Received: 1987

Conferring Institution: West Virginia University, Morgantown, WV

Area of Degree Specialization: Reproductive Physiology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. *(Expand the table as necessary)*

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<td>Human Physiology</td>
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<td>Human Physiology</td>
<td>24</td>
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</tr>
<tr>
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<td>Human Physiology</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 228</td>
<td>Human Physiology</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>Summer 2013</td>
<td>BSC 491</td>
<td>Capstone Experience</td>
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<td>Spring 2013</td>
<td>BSC 422</td>
<td>Animal Physiology</td>
<td>29</td>
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<tr>
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<td>Capstone Experience</td>
<td>21</td>
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<td>Capstone Experience</td>
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<td>BSC 422</td>
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<td>18</td>
<td>100</td>
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</table>
NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Directed Student Learning and Research
Milhoan, B., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process.

McGill, K., Research, Master's Thesis Committee Member, Integrated Sci & Technology Department, In-Process.

Thornton, K., Learning, Directed Individual/Independent Study, Biological Sciences Department, BSC, 485, 2 credit hours, "Infertility", In-Process. (August 2013 - Present).

Adkins, C., Research, Master's Thesis Committee Member, Biological Sciences Department, Proposal. (August 2012 - Present).

Breakfield, D., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (August 2012 - Present).

Foltz, D., Research, Master's Thesis Committee Member, Integrated Sci & Technology Department, In-Process. (August 17, 2011 - Present).

Williams, A., Learning, Master's Thesis Committee Member, Biological Sciences Department, Completed. (August 2011 - May 2013).

Yin, C., Research, Supervised Research, Biological Sciences Department, "Kiss1 mRNA Levels in mPOA and ARC of the Female Rat", Completed. (May 2012 - August 2012).

Abidir, M., Ronto, B., Research, Supervised Research, Chemistry Department, BSC, 480, 2 credit hours, "Kisspeptin Lab", Completed. (August 2011 - December 2011).

2) Service

Department
Department Chairman, Chairman, (July 1, 2013 - Present).

interim Department Chairman, Administration, (July 1, 2012 - June 30, 2013).

Department Administration, Associate Chairman, (July 1, 2009 - June 30, 2012).

Curriculum, Committee Chair, (January 1, 2012).

College
Brain Expo, Participant in presenting information to elementary students (March 8, 2013).

Brain Expo, Participant in presenting information to elementary students (March 9, 2012).

Curriculum Committee, Committee Member (January 1, 2011 - December 31, 2011).

Brain Expo, Participant in presenting information to elementary students (March 11, 2011).
University  
Faculty Senate, Committee Member (August 1, 2011 - May 5, 2012).

Community  
Benevolent and Protective Order of Elks, Member, Huntington, WV, USA (April 1998 - Present).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships  
American Physiology Society, APS, Research and Teaching as it applies to physiology. (January 1, 2012 - Present).


American Physiology Society, APS, Research and Teaching as it applies to physiology. (January 1, 2011 - December 31, 2011).

Sigma Xi, Scientific organization. (January 1, 2011 - December 31, 2011).

Faculty Development Activities Attended  
Workshop, "First Class & Institutional Change", CATL, Huntington, WV. (February 7, 2011).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.

Awards and Honors  
INCO Faculty Development funding, Faculty Development Committee (Marshall U), (October 29, 2012).

Research Committee Funding, Faculty Senate, (April 2012).

Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Herman Mays
Rank: Assistant Professor
Start Date at Marshall as a Faculty Member: August 15, 2014
Status: Probationary
Highest Degree Earned: Ph.D.
Date Degree Received: May 2001
Conferring Institution: Univ. Kentucky
Area of Degree Specialization: Evolutionary Ecology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Response</th>
</tr>
</thead>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Intellectual Contributions


Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Jennifer J Mosher
Rank: Assistant Professor

Start Date at Marshall as a Faculty Member: August 15, 2014
Status: Probationary

Highest Degree Earned: Ph D Date Degree Received: 2008
Conferring Institution: University of Alabama, Tuscaloosa, AL
Area of Degree Specialization: Biological Sciences

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Respons</th>
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<tr>
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<td>BSC 302</td>
<td>Principles of Microbiology</td>
<td>71 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>BSC 662</td>
<td>Seminar II</td>
<td>17 50%</td>
<td>50</td>
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</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Intellectual Contributions


2) Service
Department
Department Autoclave Manager, Manage autoclave facilities for department, (October 15, 2014 - Present).

Professional
Frontiers in Microbiology journal, Editorial Review Board Member (January 1, 2010 - Present).

Ohio River Basin Conference of Research and Education, Student Poster and Presentation Judge, Pittsburgh, PA, USA (September 11, 2014).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
American Society for Limnology and Oceanography, ASLO. (January 1, 2011 - Present).

American Society for Microbiology, ASM. (January 1, 2001 - Present).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name:  Dr. Frank Robin O'Keefe
Rank:  Associate Professor

Start Date at Marshall as a Faculty Member:  August 17, 2006

Status:  Tenured

Highest Degree Earned:  Ph.D.  Date Degree Received:  

Conferring Institution: 

Area of Degree Specialization: 

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  *(Expand the table as necessary)*

<table>
<thead>
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<th>Title</th>
<th>Enrolled</th>
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<td>4 100%</td>
<td>100</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>BSC 310</td>
<td>Comp Vertebrate Anatomy</td>
<td>17 100%</td>
<td>100</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>BSC 661</td>
<td>Seminar I</td>
<td>15 34%</td>
<td>34</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>24 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>22 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>24 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>21 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>22 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>24 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 227</td>
<td>Human Anatomy</td>
<td>16 50%</td>
<td>50</td>
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<td>Gross Anatomy for PT</td>
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<tr>
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<td>100</td>
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<td>Spring 2013</td>
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<td>Seminar I</td>
<td>14 50%</td>
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<td>Human Anatomy</td>
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<td>25 100%</td>
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<td>24 100%</td>
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<tr>
<td>Spring 2012</td>
<td>BSC 661</td>
<td>Seminar I</td>
<td>21 50%</td>
<td>50</td>
</tr>
</tbody>
</table>
1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. J Elmer M Price
Rank: Professor

Start Date at Marshall as a Faculty Member: April 01, 2007

Status: Tenured

Highest Degree Earned: Ph D
Date Degree Received: 1987

Conferring Institution: University of Cincinnati, Cincinnati, OH

Area of Degree Specialization: Biochemistry

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
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<td>26</td>
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<tr>
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<td>Intro Grad Seminar</td>
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<td>50%</td>
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<tr>
<td>Fall 2013</td>
<td>BSC 104</td>
<td>Introduction to Biology</td>
<td>27</td>
<td>100%</td>
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<tr>
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<td>BSC 104</td>
<td>Introduction to Biology</td>
<td>28</td>
<td>100%</td>
</tr>
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<td>Introduction to Biology</td>
<td>27</td>
<td>100%</td>
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<tr>
<td>Spring 2013</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
<td>27</td>
<td>100%</td>
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<tr>
<td>Spring 2013</td>
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<td>27</td>
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<td>Spring 2013</td>
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<td>Principles of Biology</td>
<td>27</td>
<td>100%</td>
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<tr>
<td>Fall 2012</td>
<td>BSC 120</td>
<td>Principles of Biology</td>
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<td>100%</td>
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<td>28</td>
<td>100%</td>
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<tr>
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<td>26</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>FYS 100</td>
<td>First Year Seminar</td>
<td>22</td>
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<tr>
<td>Spring 2012</td>
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<td>SpTp:Parkinson's</td>
<td>1</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research
Contracts, Grants and Sponsored Research

Price, J. E. M. (Co-Principal), Norton, M. L. (Principal), Muchlinski, M. (Co-Principal), Cartwright, T. J. (Co-Principal), B. H. (Co-Principal), Grant, "Launching Tomorrow's Biotechnology Workforce Leaders", NSF, Federal, $2,563,467.00, Not Funded.

Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.

Price, J. E. M. (Principal), Grant, "Neurogenic Adult Blood-Derived Stem Cells: Differentiation, Migration and Therapy", NIH, Federal, $1,772,500.00, Not Funded.

Price, J. E. M. (Principal), Grant, "RUI: Understanding Neurogenesis of the Adult Mammalian Brain: Differentiation, Migration and Cell-Cell Communication", NSF, Federal, $1,349,326.00, Not Funded.

Price, J. E. M. (Principal), Grant, "URM: Full-Immersion Research Experience for Undergraduate Pioneers in", NSF, Federal, $1,000,000.00, Not Funded.


Price, J. E. M. (Supporting), Carter, A. (Principal), Grant, NASA, State, $1,000.00, Funded. (2013).


Price, J. E. M. (Supporting), Graham, M. (Principal), Grant, "Ex Vivo Studies of Endothelium", SURE, State, $5,000.00, Funded. (2011).

Price, J. E. M. (Supporting), White, A. (Principal), Grant, "Neurogenesis of Adult Stem Cells", SURE, State, $5,000.00, Funded. (2010).


Price, J. E. M. (Supporting), White, A., Grant, "Axon Growth and Differentiation of Subventricular Zone Neural Stem Cells", SURE, State, $5,000.00, Funded. (2009).


Intellectual Contributions


Presentations


2) Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Gary E Schultz
Rank: Assistant Professor

Start Date at Marshall as a Faculty Member: January 02, 2008

Status: Probationary

Highest Degree Earned: Ph D Date Degree Received: 1999

Conferring Institution: College of William and Mary, Williamsburg, VA

Area of Degree Specialization: Marine Science/Microbial Ecology, Marine Microbial Ecology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
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<th>Title</th>
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<th>% Responsiveness</th>
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<td>Graduate Seminar</td>
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</tr>
<tr>
<td>Spring 2014</td>
<td>BSC 302</td>
<td>Microbiology</td>
<td>73</td>
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<td>BSC 302</td>
<td>Principles of Microbiology</td>
<td>71</td>
<td>100%</td>
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<td>Spring 2014</td>
<td>BSC 661</td>
<td>Seminar I</td>
<td>15</td>
<td>33%</td>
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<td>Fall 2013</td>
<td>BSC 443</td>
<td>Microbial Genetics</td>
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<td>Principles of Microbiology</td>
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<td>BSC 580</td>
<td>SpTp: Emerging Infectious Diseases</td>
<td>4</td>
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<tr>
<td>Spring 2012</td>
<td>FYS 100</td>
<td>First Year Seminar</td>
<td>23</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 104</td>
<td>Introduction to Biology</td>
<td>30</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 104</td>
<td>Introduction to Biology</td>
<td>29</td>
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<td>Spring 2012</td>
<td>BSC 104</td>
<td>Introduction to Biology</td>
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</table>
1) Scholarship/Research

Contracts, Grants and Sponsored Research

Schultz, G. E. (Principal), Grant, "Diversity, Stability, and Resilience of the Microbial Community of Nearshore Marine Ecosystems over Temporal and Spatial Scales", NSF, Federal, $1,150,000.00, Not Funded.

Schultz, G. E. (Co-Principal), Gilliam, F. S. (Co-Principal), Grant, "Effects of excess nitrogen on above and below ground interactions in a hardwood forest biogeochemical linkages of overstory, herbaceous layer, and microbial communities.", NSF, Federal, Currently Under Review.


Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.

Schultz, G. E. (Principal), Grant, "Relationships Between Bacterial Diversity, Ecosystem Structure, and Ecosystem Function of the Ohio River Over Spatial and Temporal Scales", NSF, Federal, $595,345.00, Not Funded.


Schultz, G. E. (Principal), Grant, "Species Level Bacterial Dynamics and Community Structure in the Ohio River", NSF, Federal, $350,000.00, Currently Under Review. (December 1, 2012 - December 1, 2016).

Schultz, G. E. (Principal), Sponsored Research, "Population Dynamics of the Microbial Community in the Ohio River Over Seasonal and Spatial Scales", NSF EPSCOR RII, Federal, $15,000.00, Funded. (June 1, 2012 - May 31, 2013).

Kovatch, J. J. (Co-Principal), Trzyna, W. C. (Principal), Schultz, G. E. (Co-Principal), Grant, "Using next-generation sequencing to explore the microbial diversity of the Ohio River", Illumina, Inc., Private, $125,000.00, Not Funded. (October 15, 2012).

Schultz, G. E. (Principal), Grant, "Diversity, Stability, and Resilience of the Microbial Community of the Ohio River over Temporal and Spatial Scales", Marshall University, Marshall University, $2,000.00, Funded. (May 1, 2012 - August 1, 2012).

Schultz, G. E. (Principal), Grant, "The relationship between environment, diversity, and relative abundance at the species level in the microbial community of the Ohio River", WVHEPC, State, $5,000.00, Funded. (June 1, 2012 - July 1, 2012).


Schultz, G. E., Grant, "Diversity, Stability, and Resilience of the Microbial Community of the Ohio River over Temporal and Spatial Scales", Marshall University, Marshall University, $2,000.00, Funded. (May 1, 2011 - August 20, 2011).

Schultz, G. E. (Principal), Grant, "Diversity, Stability, and Resilience of the Microbial Community of the Ohio River over Temporal and Spatial Scales", WVHEPC Research Proposal Mini-Grants Program, State, $5,000.00, Funded. (June 1, 2011 - July 1, 2011).

Intellectual Contributions


Presentations


Kovatch, J. J. (Coordinator/Organizer), Schultz, G. E. (Author Only), Oral Presentation, Joint Meeting of the West Virginia and Ohio Chapters of the American Fisheries Society, American Fisheries Society, Huntington, WV, "Comparative effects of surface mining on microbial biodiversity in conjoined river tributaries of the Mud River in southern West Virginia.", Conference, Academic, Regional. (February 2013).


Research Currently in Progress
Schultz, Gary E, "Bacterial Diversity Fourpole Creek", Scholarly.

Schultz, Gary E, "Bacterial Diversity in the Ohio River", On-Going, Scholarly.

Schultz, Gary E, Kovatch, Jeffrey J, "Bacterial Diversity Twelvepole Creek", Writing Results, Scholarly.

Directed Student Learning and Research
Anneken, E., Boone, L., Smith, P., Research, Master's Thesis Committee Chair, Biological Sciences Department.

Conlon, C., Research, Master's Thesis Committee Member, Biological Sciences Department, Completed.

Desser, D., Research, Master's Thesis Committee Member, Biological Sciences Department, Completed.

Lacy, E., Learning, Master's Thesis Committee Member, Biological Sciences Department, Completed.

Ayewoh, O., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process.

Fulcher, R., Research, Master's Thesis Committee Member.

Kelly, W., Ayewoh, O., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process.

Sexton, A., Sexton, S., McDonald, Z., Research, Supervised Research, Biological Sciences Department.

Jude, B., Amos, M., Riley, M., Research, Supervised Research, Biological Sciences Department, In-Process. (August 2013 - Present).

White, A., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (August 2012 - Present).
Boone, L., Smith, P., Research, Master's Thesis Committee Chair, Biological Sciences Department, Proposal. (August 2011 - Present).

Sexton, A., Research, Supervised Research, Biological Sciences Department, Completed. (May 1, 2012 - August 1, 2012).

Sheppard, S., Research, Supervised Research, Biological Sciences Department. (January 15, 2012 - May 1, 2012).

2) Service

Department
Microbiologist Search Committee Round 3, Committee Member.

Microbiologist Search Committee Round 2, Committee Member.

Microbiologist Search Committee, Committee Member, (August 1, 2011 - Present).

Safety, Committee Member, (January 1, 2011 - Present).

Space Committee, Committee Member, (January 1, 2011 - Present).

Microbiologist Search Committee, Committee Member, (January 1, 2011 - June 30, 2011).

College
Employee of the Month, Committee Member (October 1, 2010 - April 1, 2011).

Professional

Community
Fourpole Creek Watershed Association, Scientist/consultant/founding member, Huntington, WV, United States.

Dine and Discover, Guest Speaker, Huntington, WV, USA (November 15, 2011).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
Association for the Sciences of Limnology and Oceanography, ASLO, The leading organization for researchers and teachers in the aquatic sciences. (January 2013 - Present).

Faculty Development Activities Attended
Workshop, "CLC Workshop", CLC, Huntington, WV, USA. (December 13, 2011 - Present).

Workshop, "Next Generation Sequencing and Bioinformatics Forum", Marshall University, Huntington, WV, USA. (October 27, 2011 - Present).

Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Charles Somerville
Rank: Professor

Start Date at Marshall as a Faculty Member: August 25, 1997
Status: Tenured. –Dean of College of Science--

Highest Degree Earned: Ph.D. Date Degree Received: 
Conferring Institution: 

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
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<th>Term/Year</th>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research
Kovatch, J. J. (Supporting), Somerville, C. (Principal), El-Shazly, A. E. (Supporting), Kolling, D. (Supporting), Grant, "Appalachian Water Resources Institute", NIST Construction Grant Program, Federal, $9,000,000.00, Not Funded. (April 2011 - 2011).

Kovatch, J. J. (Principal), Somerville, C. (Co-Principal), Barrios, J. d. D. (Co-Principal), Grant, "Detection of phytoplankton biomass in large rivers with remote sensing", NASA WV Space Consortium RIG, State, $30,000.00, Funded. (April 2010 - December 2011).

Kovatch, J. J. (Co-Principal), Somerville, C. (Principal), Evans, D. K. (Co-Principal), Jones, T. G. (Co-Principal), Contract, "Habitat Improvement Structure Assessment on Kanawha River, WV", US Army Corps of Engineers;, Federal, $130,000.00, Funded. (January 2009 - November 2009).

Intellectual Contributions


Presentations

Professional Memberships
United States Coast Guard Academy Alumni Association, USCGA Alumni Association. (July 17, 2009 - Present).

Faculty Development Activities Attended
Workshop, "Digital Measures Training", Marshall University, Huntington, West Virginia, USA.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name:  Dr. Nadja Spitzer  Rank:  Assistant Professor

Start Date at Marshall as a Faculty Member:  August 17, 2012

Status:  Probationary

Highest Degree Earned:  Ph D  Date Degree Received:  2006

Conferring Institution:  Georgia State University, Atlanta, GA, USA

Area of Degree Specialization:  Biology, Neurobiology and Behavior

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment.  (Expand the table as necessary)

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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.


Spitzer, N. (Principal), Grant, "MU-ADVANCE Path Forward Travel Award", MU-ADVANCE, Marshall University, $1,000.00, Funded. (November 2013).

Presentations


Research Currently in Progress
Spitzer, Nadja, Ana, Joshua, "Effects of fructose-mediated oxidative stress on differentiation of adult neural stem cells in vitro.", On-Going, Scholarly.

Spitzer, Nadja, Robert, Danielle, "The effects of nanoparticles on differentiation of neural stem cells in vitro.", On-Going, Scholarly.

Spitzer, Nadja, Corinne, Amber, Ana, "The effects of phthalates on differentiation of neural stem cells in vitro.", Scholarly.

Spitzer, Nadja, Corinne, Robert, "The role of serotonin signaling in differentiation of adult neural stem cells in vitro.", Scholarly.

Directed Student Learning and Research
Blankenship, D., Research, Directed Individual/Independent Study, Biological Sciences Department, BSC, 485, 2 credit hours, "Effects of environmental contaminants on differentiation of neural stem cells in vitro.", Completed. (January 2014 - Present).


Ramirez, A., Research, Directed Individual/Independent Study, Biological Sciences Department, BSC, 485, 2 credit hours, "Effects of fructose-mediated ROS on adult neural stem cell differentiation in vitro.", In-Process. (January 14, 2013 - Present).

Vance, D., Research, Directed Individual/Independent Study, Nursing Department, BSC, 485, 2 credit hours, "Effect of nanoparticles and herbicides on neural stem cell differentiation.", In-Process. (January 14, 2013 - Present).

Gonzales-Morales, S., Research, Master's Thesis Committee Member, Biological Sciences Department, "Functional studies of Ptched3 during spermatogenesis.", In-Process. (January 2013 - Present).

Cooper, R., Research, Directed Individual/Independent Study, Biological Sciences Department, BSC, 485, 2 credit hours, "Effects of environmental contaminants on differentiation of neural stem cells in vitro.", Completed. (August 27, 2012 - Present).

Adkins, C., Research, Master's Thesis Committee Chair, Biological Sciences Department, BSC, 681, 1 credit hours, "Modulation of neural stem cell differentiation in vitro.", In-Process. (August 2012 - Present).

Campbell, A., Research, Capstone Experience - Research Project, Biological Sciences Department, BSC, 491, 2 credit hours, "Effect of phthalates on neural stem cell differentiation.", Completed. (January 14, 2013 - December 7, 2013).


2) Service

Department
Curriculum Committee, Committee Member, (November 2013 - Present).

College
College of Science recruitment efforts, Faculty representative, Biological Science (August 2012 - Present).
**University**  
Marshall University Chapter of Medlife, Faculty Advisor (August 2013 - Present).

**Professional**  
National Science Foundation, Committee Member, Huntington, WV, USA (September 2013 - November 2013).


National Science Foundation, Reviewer, Ad Hoc Reviewer, Huntington, WV, USA (March 2013).

National Science Foundation, Committee Member, Arlington, VA, USA (February 2013 - March 2013).


**Community**  
Marshall University Brain Awareness Program, Program Organizer, Huntington, WV, USA (January 2009 - Present).

Marshall University Brain Awareness Program, Presenter, Williamson, WV, USA (November 15, 2013).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

**Professional Memberships**  
Faculty for Undergraduate Neuroscience, FUN, Enhancing undergraduate participation in research, presentation of research at SFN meeting, Disseminating innovations and recognizing excellence in undergraduate neuroscience education, Developing networks that enhance undergraduate neuroscience education, research, faculty development. (December 21, 2012 - Present).

American Society for Cell Biology, ASCB, ASCB is an inclusive, international community of biologists studying the cell, the fundamental unit of life. We are dedicated to advancing scientific discovery, advocating sound research policies, improving education, promoting professional development, and increasing diversity in the scientific workforce. (2010 - Present).

Society for Neuroscience, SfN, Advance the understanding of the brain and the nervous system. Provide professional development activities, information, and educational resources. Promote public information and general education. Inform legislators and other policymakers. (2000 - Present).

**Faculty Development Activities Attended**  


Conference Attendance, "WV-INBRE Summer Research Symposium", Huntington, WV, USA. (July 2013).


Workshop, "Fall 2012 Pedagogy of Teaching and Learning Online (PLO) workshop", Marshall University, Huntington, WV, USA. (August 1, 2012 - December 17, 2012).


4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Suzanne Guita Strait
Rank: Professor

Start Date at Marshall as a Faculty Member: August 30, 1993

Status: Tenured

Highest Degree Earned: Ph D Date Degree Received: 1993
Conferring Institution: SUNY Stony Brook, Stony Brook NY
Area of Degree Specialization: Physical Anthropology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
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1) Scholarship/Research

Contracts, Grants and Sponsored Research

Strait, S. G. (Principal), Contract, "Carnivora and Insectivora of West Virginia", WVDNR, State, $8,000.00, Currently Under Review.

Strait, S. G. (Co-Principal), Serrat, M. (Principal), Grant, "Temperature enhancement bone elongation in growth plantes", Marshall Clinical Translational Pilot, Marshall University, $25,000.00, Currently Under Review.

Strait, S. G. (Principal), Pauley, T. K. (Co-Principal), Grant, "West Virginia Natural History Online", NSF, Federal, $373,256.00, Funded. (May 2012 - May 2014).


Intellectual Contributions


Strait, S. G. West Virginia Vertebrates.


Presentations


Strait, S. G., Hamden, J., Okpoti, E., Poster, Association of Southeastern Biologists, Athens, Georgia, "West Virginia: Where are the mammals?", Conference, Academic, Regional, Accepted. (April 2012).

Directed Student Learning and Research
Lucas, M., Research, undergraduate research, NASA project, Biological Sciences Department, "The use of mtDNA to determine hybridization in West Virginian coyotes, Canis latrans".

Jones, S., Learning, MA Committee chair. (August 2012 - Present).

Williamson, B., Research, Master's Thesis Committee Member, Biological Sciences Department, "Habitat diversity and home range size on eastern box turtles at Hungry Beech Nature Preserve, Roane County, WV". (August 2011 - Present).

Bryd, C., Research, Master's Thesis Committee Member, Biological Sciences Department. (August 2011 - Present).

Corrie, J., Research, Master's Thesis Committee Member, In-Process. (August 2011 - Present).

DeBlois, M., Research, Master's Thesis Committee Member. (August 2011 - Present).

Hamden, J., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Hybridization of Coyotes in West Virginia". (January 2011 - Present).

Adkins, M., Research, Dissertation Committee Member, Educa Found & Tech Department, "A qualitative study of enabling and constraining factors affecting US military veterans in higher education", In-Process. (August 2010 - Present).


Campbell, J., Research, undergraduate research, Biological Sciences Department, "West Virginia vertebrate web site development", In-Process. (August 2012 - December 2012).

Mitchell, K., Research, undergraduate research, Biological Sciences Department, "Behavior and conservation of Neotropical primates – fruit phenology and dietary choice". (January 2012 - May 2012).

Wood, K., Research, Dissertation Committee Member, Educa Found & Tech Department, "High school - college transition in first generation students", Completed. (August 2007 - May 2012).

2) Service
Department
Curriculum Committee, Committee Member, (2012 - Present).

Collections, Curator, (September 2009 - Present).

Promotion and Tenure Committee, Committee Member, (September 2007 - Present).

Library Representative, Committee Chair, (September 1994 - Present).

University
Faculty Senate, Committee Member (September 2012 - Present).

University Facilities and Planning Committee, Faculty Senate Liaison (September 2012 - Present).

Professional
Gregory Award, Committee Member (2009 - Present).

Reviewer, Journal Article (December 2012).

Reviewer, Grant Proposal (October 2012).

Reviewer, Journal Article (February 2012 - October 2012).

Reviewer, Journal Article (September 2012).

Community
Girl Scouts, Workshop Organizer (February 2012).
High School Science Fair Judge (January 2012).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships
Society for the Preservation of Natural History Collections, SPNHC. (June 2012 - Present).
Society of Vertebrate Paleontology, SVP, member of Gregory Committee. (September 1989 - Present).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Wendy Caren Trzyna  Rank: Associate Professor
Start Date at Marshall as a Faculty Member: August 17, 2007
Status: Tenured

Highest Degree Earned: __________________________  Date Degree Received: __________________
Conferring Institution: __________________________
Area of Degree Specialization: __________________

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research
Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.
Kovatch, J. J. (Co-Principal), Trzyna, W. C. (Principal), Schultz, G. E. (Co-Principal), Grant, "Using next-generation sequencing to explore the microbial diversity of the Ohio River", Illumina, Inc., Private, $125,000.00, Not Funded. (October 15, 2012).

Presentations


2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Dr. Jagannath V. Valluri

Rank: Professor

Start Date at Marshall as a Faculty Member: August 28, 1989

Status: Tenured

Highest Degree Earned: Ph.D.
Date Degree Received:

Conferring Institution:

Area of Degree Specialization:

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Respons</th>
</tr>
</thead>
<tbody>
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<td>Spring 2014</td>
<td>BSC 322</td>
<td>Principles Cell Biology</td>
<td>23</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>BSC 322</td>
<td>Principles Cell Biology</td>
<td>15</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2014</td>
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<td>Principles Cell Biology</td>
<td>19</td>
<td>100%</td>
</tr>
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<td>Spring 2014</td>
<td>BSC 661</td>
<td>Seminar I</td>
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</tr>
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<td>Summer 2013</td>
<td>BSC 322</td>
<td>Principles Cell Biology</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BSC 322</td>
<td>Principles Cell Biology</td>
<td>26</td>
<td>100%</td>
</tr>
<tr>
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<td>Principles Cell Biology</td>
<td>22</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2013</td>
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</tr>
<tr>
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<td>Cell Bio &amp; Biotechnology</td>
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<td>Fall 2012</td>
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<td>24</td>
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<td>1</td>
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</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research
2) Service

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name: Jayme Linn Waldron
Rank: 

Start Date at Marshall as a Faculty Member: August 17, 2008

Status: Probationary

Highest Degree Earned: Ph D Date Degree Received: 2005

Conferring Institution: Clemson University, Clemson, SC

Area of Degree Specialization: Forest Resources

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Response</th>
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</thead>
<tbody>
<tr>
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<td>15</td>
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</tr>
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<td>Spring 2014</td>
<td>BSC 506</td>
<td>Herpetology</td>
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<td>Fall 2013</td>
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<td>Seminar II</td>
<td>10</td>
<td>50%</td>
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<tr>
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<td>BSC 680</td>
<td>SpTp: Quantitative Ecology</td>
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<tr>
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<td>Cons Forest Soil Wildlife</td>
<td>11</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BSC 560</td>
<td>Cons Forest Soil Wildlife</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>BSC 880</td>
<td>SpTp: Quantitative Ecology</td>
<td>12</td>
<td>100%</td>
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<tr>
<td>Fall 2012</td>
<td>BSC 406</td>
<td>Herpetology</td>
<td>12</td>
<td>100%</td>
</tr>
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</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

1) Scholarship/Research

Contracts, Grants and Sponsored Research

Waldron, J. (Principal), Welch, S. M. (Co-Principal), Grant, "Efficacy of long-distance relocations for managing risks associated with eastern diamondback rattlesnakes (Crotalus adamanteus) on the Marine Corps Recruit Depot, Parris Island", DOD, Federal, $93,962.00, Not Funded.


Kovatch, J. J. (Co-Principal), Waldron, J. (Principal), Grant, "Testing bioclimatic thresholds of reptiles predicted by maximum energy entropy theory", Department of the Army, Federal, $105,000.00, Currently Under Review. (November 2013 - Present).


Intellectual Contributions


Presentations


Martin, M. D. (Presenter & Author), Waldron, J. (Presenter & Author), Welch, S. M. (Presenter & Author), Holloway, J. D. (Author Only), Mousseau, T. A. (Author Only), Poster, Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting, PARC, McCormick, SC, "A NON-INVASIVE TECHNIQUE FOR EXTERNAL TRANSMITTER ATTACHMENT ON RATTLESNAKES", Conference, Academic, Regional, Accepted. (February 2013).


Martin, M. D. (Presenter & Author), Waldron, J. (Presenter & Author), Welch, S. M. (Presenter & Author), Holloway, J. D. (Author Only), Mousseau, T. A. (Author Only), Paper, Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting, PARC, McCormick, SC, "ADULT EASTERN DIAMONDBACK RATTLESNAKE (Crotalus adamanteus) SURVIVAL IN A HUMANIZED LANDSCAPE", Conference, Academic, Regional, Accepted. (February 2013).

Fill, J. M. (Presenter & Author), Waldron, J., Welch, S. M. (Presenter & Author), Martin, M. D. (Presenter & Author), Mousseau, T. A. (Author Only), Bennett, S. H. (Author Only), Holloway, J. D. (Author Only), Poster, Southeastern Partners in Amphibian and Reptile Conservation Annual Meeting, PARC, McCormick, SC, "Breeding and Reproductive Phenology of the Eastern Diamondback Rattlesnake (Crotalus adamanteus)", Conference, Academic, Regional, Accepted. (February 2013).
Waldron, J. (Presenter Only), Demonstration, Piedmont South Atlantic Cooperative Ecosystem Study Unit Annual Meeting, CESU, Charleston, SC, "None", Other, Academic, Regional, Accepted. (October 11, 2012).


Waldron, J. (Presenter Only), Paper, Southern Appalachian Cooperative Ecosystem Study Unit Annual Meeting, CESU, Murfreesboro, TN, "None", Other, Academic, Regional, Accepted. (September 27, 2012).


Research Currently in Progress
Waldron, Jayme, Elise Edwards, "Determining the best capturing methods and the effect of liming on two plethodontid salamanders: Pseudotriton ruber and Gyrinophilus porphyriticus", Writing Results, Scholarly.

Waldron, Jayme, Pauley, Thomas K, Catherine Johnson, "Effects of Habitat Fragmentation on Cheat Mountain Salamander Demographics".

Waldron, Jayme, Kelli Herrick, "Evaluating the effectiveness of sampling methods for the eastern hellbender (Cryptobranchus a. alleganiensis) in the Ohio River watershed", On-Going, Scholarly.

Waldron, Jayme, Derek Breakfield, "Measuring total testosterone migration through the egg membrane (using an ELISA) and its effects on several fitness parameters on neonate American Toads", On-Going, Scholarly.


Directed Student Learning and Research
O'Hanlon, B., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (August 2013 - Present).

Goff, C., Research, Master's Thesis Committee Chair, Biological Sciences Department. (August 2013 - Present).

Cooley, J., Research, Master's Thesis Committee Chair, Biological Sciences Department, In-Process. (August 2013 - Present).

Timm, S., Research, Master's Thesis Committee Chair, Biological Sciences Department. (August 2013 - Present).

Jones, S., Research, Master's Thesis Committee Member, Biological Sciences Department, "Footprints and Camera Traps: Can they be used to monitor river otters in West Virginia?", In-Process. (April 2013 - Present).

Billmyer, J., Research, Master's Thesis Committee Member, Biological Sciences Department, "Effects of excess nitrogen deposition on Rubus spp. (Raspberry) within a Central Appalachian Hardwood Forest", In-Process. (February 2013 - Present).

Arneson, E., Research, Master's Thesis Committee Member, Integrated Sci & Technology Department, "Distribution and Occupancy of the crayfish, Orconectes rusticus, in the Coal River Watershed". (December 2012 - Present).

Breakfield, D., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Measuring total testosterone migration through the egg membrane (using an ELISA) and its effects on several fitness parameters on neonate American Toads", In-Process. (August 2012 - Present).
Herrick, K., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Evaluating the effectiveness of sampling methods for the eastern hellbender (Cryptobranchus a. alleganiensis) in the Ohio River watershed", In-Process. (August 2012 - Present).

Rankin, L., Research, Master's Thesis Committee Member, Biological Sciences Department, "Assessment of ecological integrity in grazed tropical dry forests of Madagascar", In-Process. (August 2012 - Present).

Sinclair, A., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (August 2011 - Present).

Fill, J., Research, Doctoral Advisory Committee Member, Biomedical Sciences Department, In-Process. (August 2009 - Present).

Martin, M., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (August 2009 - Present).

Shephard, N., Research, Master's Thesis Committee Member, Biological Sciences Department, "Survival of Lungless Salamanders in Association with Fragmented Corridors", In-Process. (August 2009 - August 2014).

Hicks, L., Research, Undergraduate Honors Thesis, Biological Sciences Department, "Plethodon glutinosus comparative morphology", Completed. (August 2013 - May 2014).

Edwards, E., Research, Master's Thesis Committee Chair, Biological Sciences Department, "Determining the best capturing methods and the effect of liming on two plethodontid salamanders: Pseudotriton ruber and Gyrinophilus porphyriticus", Completed. (August 2012 - May 2014).

Semasko, A., Research, Master's Thesis Committee Member, Biological Sciences Department, "SIZE AND AGE VARIATION OF LARVAL GYRINOPHILUS PORPHYRITICUS PORPHYRITICUS IN SYMPATRY WITH SALVELINUS FONTINALIS", In-Process. (August 2011 - December 2013).

Williamson, B., Research, Master's Thesis Committee Member, Biological Sciences Department, "Examining Habitat Selection and Home Range Behavior at Multiple Scales in a Population of Eastern Box Turtles, (Terrapene c. carolina), With Notes on Demographic Changes After 17 Years", In-Process. (August 2011 - December 2013).

Bowers, C., Research, Master's Thesis Committee Member, Biological Sciences Department, In-Process. (August 2011 - December 2013).

Oswald, H., Research, Master's Thesis Committee Member, Biological Sciences Department, "THE REPRODUCTIVE ECOLOGY OF PLETHODONTID SALAMANDERS IN THE SOUTH CAROLINA INNER COASTAL PLAIN", Completed. (August 2010 - May 2013).

2) Service

Department

Smith-Goodno Fellowship Committee, Committee Member, (October 2012 - Present).

Biological Sciences Graduate Admissions Committee, Committee Member, (September 2012 - Present).

College

School for the Environment Planning Committee, Committee Member (October 16, 2013 - Present).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

Professional Memberships

The Gopher Tortoise Council, GTC, Co-Chair Upland Snake Conservation Committee, The Gopher Tortoise Council (GTC) was formed in 1978 by a group of biologists and others concerned about the range-wide decline of the gopher tortoise (Gopherus polyphemus). The Council offers professional advice for management, conservation, and protection of gopher tortoises; encourages the study of the life history, ecology, and management of gopher tortoises and other upland species; conducts active public information and conservation education programs, and seeks effective protection of the gopher tortoise and other upland species throughout the southeastern United States.

American Society of Ichthyologists and Herpetologists, ASIH, Member, The American Society of Ichthyologists and Herpetologists is dedicated to the scientific study of fishes, amphibians and reptiles. The primary emphases of the Society are to increase knowledge
about these organisms, to disseminate that knowledge through publications, conferences, symposia, and other means, and to encourage and support young scientists who will make future advances in these fields. The programs of the American Society of Ichthyologists and Herpetologists are part of a global effort to interpret, understand, and conserve the Earth's natural diversity and to contribute to the wise use of natural resources for the long-term benefit of humankind. (January 1, 2013 - Present).

Society for the Study of Amphibians and Reptiles, SSAR, Member, SSAR, a not-for-profit organization established to advance research, conservation, and education concerning amphibians and reptiles, was founded in 1958. It is the largest international herpetological society, and is recognized worldwide for having the most diverse program of publications, meetings, and other activities. (January 1, 2013 - Present).

The Herpetologists League, HL, member, The Herpetologists' League, established in 1946, is an international organization of people devoted to studying herpetology -- the biology of amphibians and reptiles. HL publishes two scholarly journals -- the quarterly Herpetologica, which contains original research papers and essays, and the annual supplement Herpetological Monographs, which contains lengthy research articles, syntheses, and special symposia. (January 1, 2013 - Present).

The Wildlife Society, TWS, member, The Wildlife Society is committed to a world where humans and wildlife co-exist. We work to ensure that wildlife and habitats are conserved through management actions that take into careful consideration relevant scientific information. We create opportunities for this to occur by involving professional wildlife managers, disseminating wildlife science, advocating for effective wildlife policy and law, and building the active support of an informed citizenry.

Our mission is to represent and serve the professional community of scientists, managers, educators, technicians, planners, and others who work actively to study, manage, and conserve wildlife and habitats worldwide.

The members of The Wildlife Society manage, conserve, and study wildlife populations and habitats. They actively manage forests, conserve wetlands, restore endangered species, conserve wildlife on private and public lands, resolve wildlife damage and disease problems, and enhance biological diversity. TWS members are active across the United States, Canada, and Mexico, as well as internationally.

The products of The Wildlife Society include essential, practical, and objective information for wildlife professionals. We provide research, policy information, and practical tools in print and electronic forms, along with vibrant professional networks that allow solutions to wildlife conservation and management challenges to be anchored in science. (January 1, 2013 - Present).

Faculty Development Activities Attended
Conference Attendance, "iPED Conference on Teaching and Learning", Marshall University, Huntington, WV, USA. (August 2012).

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet
(Information for the period of this review)
August 1, 2009 - December 31, 2014

Name:  Dr. Guo-Zhang Zhu  
Rank:  Associate Professor

Start Date at Marshall as a Faculty Member:  August 17, 2003

Status:  Tenured

Highest Degree Earned:  Ph D  
Date Degree Received:  1997

Conferring Institution:  Shanghai Institute of Biochemistry, Shanghai, China

Area of Degree Specialization:  Molecular Biology

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Term/Year</th>
<th>Course</th>
<th>Title</th>
<th>Enrolled</th>
<th>% Respond</th>
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<td>100</td>
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<td>Introduction to Biology</td>
<td>28 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 105</td>
<td>Introduction to Biology</td>
<td>24 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 105</td>
<td>Introduction to Biology</td>
<td>20 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 105</td>
<td>Introduction to Biology</td>
<td>26 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>BSC 480</td>
<td>SpTp:Bio of Human Disorders</td>
<td>18 100%</td>
<td>100</td>
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<td>Spring 2013</td>
<td>BSC 301</td>
<td>Vertebrate Embryology</td>
<td>25 100%</td>
<td>100</td>
</tr>
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<td>Fall 2012</td>
<td>BSC 480</td>
<td>SpTp:Bio of Human Disorders</td>
<td>12 100%</td>
<td>100</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>BSC 301</td>
<td>Vertebrate Embryology</td>
<td>26 100%</td>
<td>100</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>BSC 301</td>
<td>Vertebrate Embryology</td>
<td>24 100%</td>
<td>100</td>
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</table>

1) Scholarship/Research

Contracts, Grants and Sponsored Research
Price, J. E. M. (Principal), Antonsen, B. L. (Co-Principal), Collier, P. S. (Co-Principal), Schultz, G. E. (Co-Principal), Trzyna, W. C. (Co-Principal), Zhu, G.-Z. (Co-Principal), Norton, M. L. (Co-Principal), Spitzer, N. (Co-Principal), Grant, "Multidisciplinary Center in Differentiation and Development: Cues and Functions", NIH, Federal, $10,296,389.00, Not Funded.

Zhu, G.-Z., Grant, "RUI: Role of Histone Methyltransferase MLL4 in Mouse Spermatogenesis", National Science Foundation, Federal, Currently Under Review.


Zhu, G.-Z., Grant, "Role of Ptchd3 in Spermatogenesis", National Institutes of Health, Federal, $212,792.00, Funded. (January 18, 2010 - December 31, 2014).

**Intellectual Contributions**


**Presentations**


**Research Currently in Progress**

Zhu, Guo-Zhang, "Gene Regulation in Human Cancer".

Zhu, Guo-Zhang, "Mammalian Fertilization and Early Embryonic Development".

**Directed Student Learning and Research**

Liu, C., Learning, Master's Thesis Committee Chair, Biological Sciences Department, "Role of Ptip in Spermatogenesis", In-Process. (August 20, 2013 - Present).

Gonzalez, S., Learning, Master's Thesis Committee Chair, Biological Sciences Department, "Role of Ptchd3 in Spermatogenesis", In-Process. (August 20, 2013 - Present).

Valentine, M., Learning, Doctoral Advisory Committee Member, Biological Sciences Department, In-Process. (August 15, 2008 - Present).


Neiheisel, M., Learning, Directed Individual/Independent Study, Biological Sciences Department, BSC, 491, 2 credit hours, "Newborn Genetic Screening", Completed. (August 20, 2013 - December 15, 2013).

Blankenship, H., Research, Directed Individual/Independent Study, Biological Sciences Department, "MLL2 in Spermatogenesis", Completed. (June 1, 2013 - July 31, 2013).


2) **Service**

**Department**

Graduate Program Committee, Committee Chair, (August 17, 2003 - Present).

**College**

Scholarship and Grants Committee, Committee Member (August 17, 2003 - Present).

**University**

Budget and Academic Policy, Committee Member (August 20, 2013 - Present).
Faculty Development Committee, Committee Member (August 17, 2005 - August 16, 2013).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix III
Students’ Entrance Abilities for Past Five Years of Graduates: Master of Science/Arts in Biological Sciences

<table>
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<th>Year</th>
<th>N</th>
<th>Mean Undergraduate GPA</th>
<th>Mean GRE Verbal</th>
<th>Mean GRE Quantitative</th>
<th>Mean GRE Analytical Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 – 2010</td>
<td>MS: 18</td>
<td>3.51</td>
<td>502.22 (n = 18)</td>
<td>648.89 (n = 18)</td>
<td>Not available</td>
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<tr>
<td></td>
<td>MA: 2</td>
<td>3.40</td>
<td>405 (n = 2)</td>
<td>560 (n = 2)</td>
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<td>MS: 6</td>
<td>3.25</td>
<td>483.33 (n = 6)</td>
<td>531.67 (n = 6)</td>
<td>Not available</td>
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<tr>
<td></td>
<td>MA: 2</td>
<td>2.76</td>
<td>460 (n = 2)</td>
<td>480 (n = 2)</td>
<td>Not available</td>
</tr>
<tr>
<td>2011 – 2012</td>
<td>MS: 15</td>
<td>3.54</td>
<td>483.33 (n = 15)</td>
<td>596.67 (n = 15)</td>
<td>Not available</td>
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<tr>
<td></td>
<td>MA: 2</td>
<td>2.93</td>
<td>495 (n = 2)</td>
<td>540 (n = 2)</td>
<td>Not available</td>
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<tr>
<td>2012 – 2013</td>
<td>MS: 6</td>
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<td>500 (n = 6)</td>
<td>616.67 (n = 6)</td>
<td>4.0 (n = 6)</td>
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<td></td>
<td>MA: 2</td>
<td>2.78</td>
<td>475 (n = 2)</td>
<td>515 (n = 2)</td>
<td>4.0 (n = 2)</td>
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<td>2013 – 2014</td>
<td>MS: 9</td>
<td>3.42</td>
<td>486.25 (n = 8)</td>
<td>605 (n = 8)</td>
<td>3.94 (n = 8)</td>
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<td></td>
<td>MA: 3</td>
<td>--</td>
<td>413.33 (n = 3)</td>
<td>503.33 (n = 3)</td>
<td>3.5 (n = 3)</td>
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Appendix IV
Exit Abilities for Past Five Years of Graduates: Master of Science/Arts in Biological Sciences

<table>
<thead>
<tr>
<th>Year</th>
<th>n</th>
<th>Mean GPA</th>
<th>Licensure Exam Results</th>
<th>Certification Test Results</th>
<th>Other Standardized Exam Results</th>
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<tr>
<td>2009 – 2010</td>
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<td>3.88</td>
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<td>3.48</td>
<td></td>
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<tr>
<td>2010 – 2011</td>
<td>MS: 6</td>
<td>3.78</td>
<td>3.48</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td></td>
<td>MA: 2</td>
<td>3.26</td>
<td></td>
<td>N/A</td>
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<tr>
<td>2011 – 2012</td>
<td>MS: 15</td>
<td>3.71</td>
<td>3.26</td>
<td>N/A</td>
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## Appendix V: 5-Year Assessment Summary

**Component Area/Program/Discipline: MS/MA in Biological Sciences**

<table>
<thead>
<tr>
<th>Program’s Student Learning Outcomes</th>
<th>Assessment Measures (Tools)</th>
<th>Standards/Benchmark</th>
<th>Results/Analysis</th>
<th>Action Taken to improve the program</th>
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</table>
| Critically evaluate scientific literature and presentations. | BSC 660/BSC 661 Graduate Seminar courses:  
  • CV Construction  
  • Small Group Discussion  
  • Grant Proposal Writing  
  • Develop research proposal | At least 90% of students score at the Satisfactory level (70%) or higher. | | |
| Present convincing arguments in a clear and concise manner. | BSC 660/BSC 661 Graduate Seminar courses:  
  • CV Construction  
  • Small Group Discussion  
  • Grant Proposal Writing  
  Develop research proposal | At least 90% of students score at the Satisfactory level (70%) or higher. | | |
| Develop compelling professional and scientific documents and presentations. | BSC 660/BSC 661 Graduate Seminar courses:  
  • CV Construction  
  • Small Group Discussion  
  • Grant Proposal Writing  
  Develop research proposal | At least 90% of students score at the Satisfactory level (70%) or higher. | | |
| Develop skills in scientific writing | BSC 662 Graduate Seminar:  
- Compose Seminar Abstract  
- Prepare Powerpoint Slides  
- Deliver Oral Presentation  
- Participate in Peer review of presentations  
- Engage in Small Group Discussion | At least 90% of students score at the Satisfactory level (70%) or higher. |
| Prepare and present scientific talks | BSC 662 Graduate Seminar:  
- Compose Seminar Abstract  
- Prepare Powerpoint Slides  
- Deliver Oral Presentation  
- Participate in Peer review of presentations  
- Engage in Small Group Discussion | At least 90% of students score at the Satisfactory level (70%) or higher. |
| Construct research proposals | BSC 662 Graduate Seminar:  
- Compose Seminar Abstract  
- Prepare Powerpoint Slides  
- Deliver Oral Presentation  
- Participate in Peer review of presentations  
- Engage in Small Group Discussion | At least 90% of students score at the Satisfactory level (70%) or higher. |
|---|---|---|
| Compose and communicate research progress reports | BSC 662 Graduate Seminar:  
- Compose Seminar Abstract  
- Prepare Powerpoint Slides  
- Deliver Oral Presentation  
- Participate in Peer review of presentations  
- Engage in Small Group Discussion | At least 90% of students score at the Satisfactory level (70%) or higher. |
| Generate and articulate critical reviews of published literature, and thesis defenses. | BSC 662 Graduate Seminar:  
- Compose Seminar Abstract  
- Prepare Powerpoint Slides  
- Deliver Oral Presentation  
- Participate in Peer review of presentations  
- Engage in Small Group Discussion | At least 90% of students score at the Satisfactory level (70%) or higher. |
| --- | --- | --- |
| Create, synthesize, and present original scientific data and analysis in a publication-quality format. Function professionally and socially in a scientific environment | Master's of Biology Thesis:  
- Evaluate Relevant Literature  
- Collect Original Data  
- Prepare Text and Figures  
- Interact with Committee for Peer Review  
- Prepare Thesis Defense  
- Deliver Public Defense | Passing of defense and awarding of degree (MS in Biology) |
| Evaluate, organize, and synthesize primary literature in original review research project | Oral Exam – MA students  
- Evaluate Relevant Literature  
- Collect Published Data  
- Prepare Research Report  
- Interact with Committee for Peer Review  
- Pass Committee Defense | Passing of defense and awarding of degree (MA in Biology) |
## Appendix VI

### Program Course Enrollment: MS/MA in Biological Sciences

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**Program Enrollment: Master of Science/Arts in Biological Sciences**

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<td>Principal Majors Enrolled : MA in Biological Sciences No Area of Emphasis</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Principal Majors Enrolled : MA in Biological Sciences AOE: Watershed Resource Science</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Principal Majors Enrolled : MA in Biological Sciences AOE: Organ Evolution Ecological Biology</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Second Majors: MS</td>
<td></td>
<td></td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>Third Majors: MS</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Students Enrolled in the Program</strong></td>
<td><strong>44</strong></td>
<td><strong>45</strong></td>
<td><strong>46</strong></td>
<td><strong>40</strong></td>
<td><strong>31</strong></td>
</tr>
<tr>
<td>Graduates: MS</td>
<td>18</td>
<td>6</td>
<td>15</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Graduates: MA</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Graduates of the Program</strong></td>
<td><strong>20</strong></td>
<td><strong>8</strong></td>
<td><strong>17</strong></td>
<td><strong>8</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
Figure 1. Trend Line for Total Enrollment and Program Graduates: Master of Science/Arts in Biological Sciences
## Appendix VIII
### Job and Graduate School Placement Rates: MS/MA in Biological Sciences

<table>
<thead>
<tr>
<th>Year</th>
<th># of graduates employed in major field</th>
<th># of graduates employed in related fields</th>
<th># of graduates employed outside field</th>
<th># of graduates accepted to Graduate Programs</th>
<th># of graduates not accounted for</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008 – 09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009 – 10</td>
<td></td>
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<tr>
<td>2010 – 11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011 – 12</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2012 – 13</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Five –Year Total</td>
<td></td>
<td></td>
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</tbody>
</table>
Appendix IX: Assessment Letters: Biological Sciences – MS/MA

MARSHALL UNIVERSITY
www.marshall.edu

Office of Assessment & Program Review

August 6, 2013

Dr. David Mallory, Chair
Biological Sciences
College of Science

Dear David:

This letter will document that the Office of Assessment did not receive an annual assessment report for the MS in Biological Sciences for academic year 2012 – 2013. As you know, this report was to have been submitted as part of the University’s Open Pathways project, in which we tested the Lumina Foundation’s Degree Qualifications Profile. I realize that, with a change in departmental leadership, you have much work to do and you have made nice progress with assessment of the undergraduate program in Biological Sciences. However, it will be important that you work diligently on an assessment plan for the graduate program during the upcoming academic year.

During the academic year 2013 – 2014, programs will continue to report assessment results and plan actions using the online reporting form used last year. These reports will be due at the end of the academic year. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds, Associate Vice President
Assessment and Quality Initiatives

C: Dr. Chuck Somerville, Dean, COS
Dr. Elmer Price, Chair
Biological Sciences
College of Science

Dear Elmer,

This letter will document that the Office of Assessment did not receive an annual assessment report for the MS in Biological Sciences for the academic year 2010 – 2011 (report was due to your Dean on December 1, 2011 and to the Office of Assessment on December 15, 2011).

During the coming academic year, it will be important that you follow the plan you developed as part of the first two activities of the Open Pathways Demonstration Project. The project’s steering committee will provide more feedback regarding next steps in that project at summer’s end. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds
Director of Academic Assessment

C: Dr. Charles Somerville, Dean, COS
Dr. Elmer Price, Chair
Biology
COS

Dear Elmer,

This letter will document that the Office of Assessment did not receive an annual assessment report for the MA/MS in Biological Sciences Program for the academic year 2009 – 2010 (report was due to your Dean on December 1, 2010 and to the Office of Assessment on December 15, 2010).

During the academic year 2011 – 2012, I plan to meet with all programs to assist with further development of assessment plans and look forward to meeting with you. I will be in touch at the end of the summer about scheduling. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds
Director of Academic Assessment

C: Dr. Charles Somerville, Dean, COS