

FACULTY AGENDA ITEM 14.15

Date: February 24, 2014

Submitted by: Laura Stephenson, Interim Dean

SUBJECT: Biology New Program, Bachelor of Science in Environmental Biology

Description: *The B.S. degree in Environmental Biology is designed to meet the needs of students expressing an interest in environmental biology and prepares them to be competitive as applicants to graduate programs. This degree is built around a biology core emphasizing the principles of ecology and evolution with an orientation towards natural resources, conservation, and other environmental concerns.*

Rationale: *The biology department proposes offering both B.A. and B.S. degrees in Environmental Biology in an effort to provide targeted degrees for our students interested in entering the fields of basic and applied ecology and evolution. In addition to providing the necessary course work for pursuing graduate degrees, many internships, and temporary and entry level research positions are advertised as desiring applicants pursuing degrees in ecology, environmental biology, conservation, or related fields. This condition places our student majoring in biology at a real or perceived disadvantage that reduces our ability to attract and retain students interested in environmental biology. Many of our competitors offer degrees or emphases similar to these, including KU, KSU, Emporia State University, Fort Hays State University and Wichita State University. This condition places Washburn University at a disadvantage. Our ability to attract and retain students interested in basic and applied ecology is expected to increase with the implementation of these new programs.*

Current Catalog Language: None

Proposed Catalog Language:

Both the B.A. and B.S. degrees in Environmental Biology are designed to meet the needs of students expressing an interest in environmental biology and preparing them to be competitive as applicants to graduate programs. These degrees are built around a biology core emphasizing the principles of ecology and evolution with an orientation towards natural resources, conservation, and other environmental concerns.

REQUIREMENTS FOR ENVIRONMENTAL BIOLOGY MAJORS:

Environmental Biology Majors must take a 23-hour core consisting of:

BI 102 General Cellular Biology (5)

BI 103 General Organismal Biology (5)

BI 310 Ecology (4)

BI 333 General Genetics (4)

BI 340 Evolutionary Biology (3)

BI 390 Biology Seminar (1) - Capstone Course

BI 395 Biology Research (1) - Capstone Course

The following non-biology courses are required of Environmental Biology majors:

- One year of physics with lab (PS 261/PS 262 or PS 281/PS 282)
- One year of general chemistry with lab (CH 151/CH 152)
- One semester of organic chemistry with lab (CH 340/CH 342)

B.S. in Environmental Biology

The Bachelor of Science (B.S.) degree in Environmental Biology requires a minimum of 44 hours in Biology: the 23-hour Environmental Biology core (listed above), 21 additional BI hours, plus a 3 credit hour quantitative course as listed below. The B.S. degree in Environmental Biology requires 124 credits to graduate.

Elective Supportive Organismal Courses for the B.S. degree in Environmental Biology:

Students must complete a total of 21 additional credit hours of biology electives with a minimum of 14 hours from the following lists with at least 1 course from the Field Electives Section.

- BI 105 General Botany (4)
- BI 110 General Zoology (4)
- BI 301 General Microbiology (4)
- BI 303 Invertebrate Zoology (4)
- BI 305 Parasitology (4)
- BI 328 Plant Anatomy and Physiology (3)
- BI 330 Animal Physiology (4)

Field Electives Section

- BI 300 Field Biology (3)
- BI 302 Entomology (4)
- BI 315 Vertebrate Zoology (4)
- BI 324 Systematic Botany (3)

Quantitative Course Requirement for the B.S. degree in Environmental Biology:

Students must complete 1 quantitative course from the list below

- BI 380 Statistical Methods for Biologists (3)
- MA 140 Statistics (3)
- MA 145 Mathematics for Decision Making (3)

The following non-biology course is required for the B.S. degree in Environmental Biology:

- MA 151

The B.S. degree also requires a 30-hour minor to be chosen from the Natural Sciences (Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, or Computer Information Science). This minor must be in departments other than the major, and must have at least 20 hours in one department. Minors for the B.S. degree are limited to these courses: Chemistry 151 or above, Physics 261 or above, Mathematics 116 or above, Computer Science 110 or above. The B.S. degree in Environmental Biology requires 124 credit hours to graduate.

Financial Implications: With a modest prediction of six B.S. students over the next 5 years (beginning 2014), we might predict a potential increase of \$117,552 in tuition revenue with little to no negative

financial impact. The proposed degree program will utilize existing faculty members, courses, and teaching laboratories. Please see the attached pro forma document.

Proposed Effective Date: *Fall 2014.*

Request for Action: *Approval by AAC/.FAC/FS/ Gen Fac, etc*

Approved by: AAC on **3-10-14**

FAC on date

Faculty Senate on date

Attachments Yes No