Code # Enter text…

**New Course Proposal Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

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| **[X] New Course or [ ]Experimental Course (1-time offering) (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to [curriculum@astate.edu](mailto:curriculum@astate.edu) for inclusion in curriculum committee agenda.

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| David F. Gilmore 9/29/2017 **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| Thomas Risch 9/29/2017 **Department Chair:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (If applicable)** |
| David F. Gilmore 9/29/2017 **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Anne Grippo 9/29/2017 **College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |   **General Education Committee Chair (If applicable)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

Travis Marsico; [tmarsico@astate.edu](mailto:tmarsico@astate.edu); 870-680-8191

2. Proposed Starting Term and Bulletin Year

Spring 2018; 2017 – 2018 Bulletin

3. Proposed Course Prefix and Number (Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

BIO 4823

4. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

Natural History Collections Research Design

Short title: Nat Hist Coll Rsch Design

5. Brief course description (40 words or fewer) as it should appear in the bulletin.

Evaluation and development of research questions using current, peer-reviewed literature as a basis for discussion supported by natural history specimens and data. Research topics include taxonomy, biogeography, ecology, and global change biology. Activities demonstrate hypothesis testing in biodiversity science.

6. Prerequisites and major restrictions. (Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. Are there any prerequisites? Yes
   1. If yes, which ones?

BIO 4813, Curation of Collections

* 1. Why or why not?

Students will be most successful in the completion of BIO 4823 if they have successfully completed the companion course BIO 4813, which teaches practical techniques of managing natural history collections.

1. Is this course restricted to a specific major? No
   1. If yes, which major? Enter text...

7. Course frequency(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

Spring Even semesters

8. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

Lecture

9. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

Standard letter

10. Is this course dual listed (undergraduate/graduate)?

Yes

11. Is this course cross listed? (If it is, all course entries must be identical including course descriptions. It is important to check the course description of an existing course when adding a new cross listed course.)

No

1. If yes, please list the prefix and course number of cross listed course.

Enter text...

1. Are these courses offered for equivalent credit? Yes / No

Please explain. Enter text...

12. Is this course in support of a new program? No

a. If yes, what program?

Enter text...

13. Does this course replace a course being deleted? No

a. If yes, what course?

Enter text...

14. Will this course be equivalent to a deleted course? No

a. If yes, which course?

Enter text...

15. Has it been confirmed that this course number is available for use? Yes

*If no: Contact Registrar’s Office for assistance.*

16. Does this course affect another program? No

If yes, provide contact information from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

**Course Details**

17. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

DATE LECTURE TOPIC

WEEK 1 INTRODUCTION TO HISTORICAL USES OF NATURAL HISTORY COLLECTIONS

WEEK 2 THE PURPOSE OF GATHERING SPECIMENS IN THE 1600s-1800s (global discovery for science)

WEEK 3 NATURAL HISTORY COLLECTIONS RESEARCH IN THE 20th CENTURY (discovering extinctions)

WEEK 4 INTRODUCTION TO 21st CENTURY USES OF COLLECTIONS (including modern genetic techniques)

WEEK 5 DESCRIBING NEW SPECIES

WEEK 6 TAXONOMIC REVISIONS

WEEK 7 DOCUMENTING EXTINCTION

WEEK 8 COLLECTIONS IN GLOBAL CHANGE BIOLOGY RESEARCH

WEEK 9 COLLECTIONS IN BIOGEOGRAPHY

WEEK 10 SPRING BREAK

WEEK 11 COLLECTIONS IN BIODIVERSITY INVENTORY

WEEK 12 COLLECTIONS FOR RESTORATION PROJECTS

WEEK 13 OBTAINING DNA FROM SPECIMENS

WEEK 14 ANCIENT DNA

WEEK 15 PRESENTATION OF RESEARCH PROJECTS

18. Special features (e.g. labs, exhibits, site visitations, etc.)

Visits and hands-on activities in the Arkansas Center for Biodiversity Collections (ACBC).

19. Department staffing and classroom/lab resources

A regular classroom and resources associated with the Arkansas Center for Biodiversity Collections will be used.

1. Will this require additional faculty, supplies, etc.?

No.

20. Does this course require course fees? Yes / No

*If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

No.

**Course Justification**

21. Justification for course being included in program. Must include:

a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

This course may be used to fulfill three hours of elective requirements for students in Bachelor of Science in Biology and Wildlife, Fisheries, and Conservation majors. This course will be particularly useful for students who plan on a life science career in academic or museum settings studying organismal biology, biogeography, ecology, and biodiversity. Also, field biologists of all types (and other types of science majors, too) will benefit from knowing about research using biodiversity collections because the ability to critically analyze research questions and develop testable hypotheses is a necessary skill for scientists. Goals for the course include understanding the variety of applications of natural history specimens in biological research and the limitations inherent in natural history specimen datasets. Through understanding how previous researchers have successfully used natural history collections in their research, students will develop skills to design their own research projects as university students and life science professionals.

NOTE: All students who graduate with degrees offered by the Department of Biological Sciences must complete a Biological Seminar capstone course. We are currently in the process of ensuring that there is an exam (assessment tool) appropriate for each degree program within the department to be used in assessing the Programmatic Learning Outcomes for students of all majors in the department. This will be implemented starting in Spring 2018 or Fall 2018 for all majors in the department. Degree specific questions are being developed for Wildlife, Fisheries, and Conservation majors currently.

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

The Department of Biological Sciences has 3 Programmatic Learning Outcomes (PLO): 1. Students will be able to (SWBAT) identify diversity as a result of evolutionary and adaptive mechanisms while recognizing the underlying genetic principles and mechanisms of these processes. 2. SWBAT distinguish biological mechanisms (for example, cellular respiration, photosynthesis, DNA replication, etc.) and relate these mechanisms to overall biological systems (for example, energy production and flow, circulatory systems in plants and animals, ecological systems) and how they work. 3. SWBAT construct hypotheses and design studies to test those hypotheses.

This course directly addresses PLO 1 and 3 by reading and interpreting studies on biodiversity in evolutionary contexts and resulting in the construction of hypotheses and studies designed to test those hypotheses.

c. Student population served.

This course will primarily serve undergraduate students in biological sciences and wildlife, fisheries, and conservation. This course is designed to teach students how to effectively and appropriately interpret scientific literature to learn how researchers have used natural history specimen collections to answer important scientific research questions across space and time.

d. Rationale for the level of the course (lower, upper, or graduate).

This course covers material that requires a high level of skill and specialization in biodiversity. Therefore, it is designated as an upper-level undergraduate course. In addition, this course will enhance options for undergraduate students interested in systematics and wildlife management careers or graduate studies.

**Assessment**

**University Outcomes**

22. Please indicate the university-level student learning outcomes for which this new course will contribute. Check all that apply.

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| * 1. **[X ]** Global Awareness | * 1. **[X ]** Thinking Critically | * 1. **[X ]** Information Literacy |

**Relationship with Current Program-Level Assessment Process**

23. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

The program-level learning outcomes for the course are: 1. Students will be able to (SWBAT) identify diversity as a result of evolutionary and adaptive mechanisms while recognizing the underlying genetic principles and mechanisms of these processes. 3. SWBAT construct hypotheses and design studies to test those hypotheses. Because natural history collections are the way that scientists document Earth’s biological diversity outcomes, scientists who work in these collections are concerned with understanding the evolutionary processes that resulted in those outcomes. This course will reinforce these program-level outcomes, and add to assessment reporting for this outcome.

24. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

NOTE: All students who graduate with degrees offered by the Department of Biological Sciences must complete a Biological Seminar capstone course. We are currently in the process of ensuring that there is an exam (assessment tool) appropriate for each degree program within the department to be used in assessing the Programmatic Learning Outcomes for students of all majors in the department. This will be implemented starting in Spring 2018 or Fall 2018 for all majors in the department. Degree specific questions are being developed for Wildlife, Fisheries, and Conservation majors currently.

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| **Program-Level Outcome 1 (from question #23)** | Students will be able to identify diversity as a result of evolutionary and adaptive mechanisms while recognizing the underlying genetic principles and mechanisms of these processes. |
| Assessment Measure | Discipline (i.e., major)-specific questions will be asked of all students in majors from the Biological Sciences department in the Biology Seminar capstone course. |
| Assessment  Timetable | This program-level outcome will be assessed each time the Biology Seminar course is taught. |
| Who is responsible for assessing and reporting on the results? | The instructor will assess the outcome and report the results to the Department Assessment Committee Chair. |

*(Repeat if this new course will support additional program-level outcomes)*

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| **Program-Level Outcome 3 (from question #23)** | Students will be able to construct hypotheses and design studies to test those hypotheses |
| Assessment Measure | Discipline (i.e., major)-specific questions will be asked of all students in majors from the Biological Sciences department in the Biology Seminar capstone course. |
| Assessment  Timetable | This program-level outcome will be assessed each time the Biology Seminar course is taught. |
| Who is responsible for assessing and reporting on the results? | The instructor will assess the outcome and report the results to the Department Assessment Committee Chair. |

**Course-Level Outcomes**

25. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | Compare and contrast research projects that utilize natural history specimen collections. |
| Which learning activities are responsible for this outcome? | Reading and lecture material and discussion of these. |
| Assessment Measure | Participation in weekly discussions based upon reading assignments and lecture materials. |
| **Outcome 2** | Develop a testable hypothesis using specimens and/or specimen data. |
| Which learning activities are responsible for this outcome? | Application of reading, lecture, and discussion materials, and hands-on experiences with natural history collections and their associated data. |
| Assessment Measure | Students will develop and justify a testable hypothesis. |
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| **Outcome 3** | Students will be able to identify diversity as a result of evolutionary and adaptive mechanisms while recognizing the underlying genetic principles and mechanisms of these processes. |
| Which learning activities are responsible for this outcome? | Students will participate in discussions of assigned reading material. |
| Assessment Measure | Students will be assessed on the progress of their understanding through assessment of their contributions to the class discussions. |

**Bulletin Changes**

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| **Instructions** |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.**  **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)  - New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font).  - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)  *You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.*  *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

**BIO 4641. Environmental Biology Laboratory** Field and laboratory exposure to ecological, economic and sociological aspects of management of water, soil and air resources. Content will vary based on current topics of importance in the field of environmental science. Laboratory three hours per week. Prerequisites, BIO 3023 or BIO 4373, BIO 4633 or permission of instructor. To be taken concurrently with BIO 4643. Special course fees may apply. Fall, odd.   
  
**BIO 4643. Environmental Biology** Exposure to ecological, economic and sociological aspects of management of water, soil and air resources. Content will vary based on current topics of importance in the field of environmental biology. Lecture three hours per week. Special course fees may apply. Prerequisites, BIO 3023 or BIO 4373, BIO 4633, or permission of instructor. Fall, odd.   
  
**BIO 4651. Wildlife Management Laboratory** Two hours per week. Special course fees may apply. To be taken concurrently with BIO 4653. Fall, even.   
  
**BIO 4653. Wildlife Management** The ecology and management of wildlife species and their environment, with emphasis on fish, waterfowl, upland game birds, and mammals. Lecture three hours per week. Special course fees may apply. Prerequisites, BIO 1301 and BIO 1303. Fall, even.   
  
**BIO 4661. Wildlife Management Investigational Techniques Laboratory** Three hours per week. Special course fees may apply. To be taken concurrently with BIO 4661. Spring, odd.   
  
**BIO 4663. Wildlife Management Investigational** Techniques Identification of wildlife problems, project design, interpretation and construction of wildlife maps, food habit and census techniques, wildlife populations and habitat analyses, predictive population dynamics, and introduction to modeling and wildlife decision making procedures. Lecture three hours per week. Special course fees may apply. Prerequisites, BIO 1301 and BIO 1303. Spring, odd.   
  
**BIO 4704. Plant Systematics** A study of the systematics, nomenclature, morphology, and identification terminology for vascular plants with an emphasis on dichotomous key-based identification of flowering plants of Arkansas. Special course fees may apply. Prerequisites, BIO 1501 and BIO 1503. Spring.   
  
**BIO 4714. Dendrology** A study of the systematics, nomenclature, morphology, phenology, geographic range, and natural history of woody plants with an emphasis on field recognition throughout the year. Dual listed with BIO 5714. Special course fees may apply. Prerequisites, BIO 1501 and BIO 1503. Fall, even.

**BIO 4813. Curation of Collections** Current, appropriate museum-quality specimen curation for a range of taxa including the collection and preservation of specimens of vascular plants, fungi, mussels, fish, reptiles and amphibians, and mammals. Dual listed with BIO 5813. Prerequisites, BIO 1301, BIO 1303, BIO 1501 and BIO 1503 or equivalent courses. Fall, odd.

***BIO 4823. Natural History Collections Research Design*** *Evaluation and development of research questions using current, peer-reviewed literature as a basis for discussion supported by natural history specimens and data.  Research topics include taxonomy, biogeography, ecology, and global change biology.  Activities demonstrate hypothesis testing in biodiversity science. Dual listed with BIO 5823. Prerequisite, BIO 4813 or permission of instructor. Spring, even.*

**Biology (BIOL)**   
  
**BIOL 1001. Biological Science Laboratory** Two hours per week. It is recommended this course be taken concurrently with BIOL 1003. Special course fees may apply. Fall, Spring, Summer. (ACTS#: BIOL 1004, BIOL 1024)   
  
**BIOL 1003. Biological Science** The major characteristics and processes of life emphasizing the human organism. Promotes understanding of diversity and unity among living organisms with focus on ecological interactions and responsibilities of people within their social and natural environment. Lecture three hours per week. Special course fees may apply. It is recommended that this course be taken concurrently with BIOL 1001. Fall, Spring, Summer. (ACTS#: BIOL 1004)   
  
**BIOL 1033. Biology of Sex** Biological basis of sex and reproduction with an emphasis on humans. Course will provide students with a basic functional understanding of human systems, which will lead to informed decisions regarding sexual and reproductive health. Lecture three hours per week. Special course fees may apply. Prerequisite, None. It is recommended this course be taken concurrently with BIOL 1001. Spring.   
  
**BIOL 1063. People and the Environment** Major environmental issues facing our society will be covered to equip students to become part of the solution to many environmental challenges confronting us this century. Lecture three hours per week. It is recommended this course be taken concurrently with BIOL 1001. Special course fees may apply. Fall, Spring.