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| For Academic Affairs and Research Use Only | |
| Proposal Number | SM04 |
| CIP Code: |  |
| Degree Code: |  |

**New or Modified Course Proposal Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

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

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

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| Virginie Rolland 20 Dec 2022 **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| Stephen J. Mullin 20 December 2022  **Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (if applicable)** |
| John Hershberger 1/23/2023  **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Mary Elizabeth Spence 1/24/2023 **Office of Accreditation and Assessment (new courses only)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
| Jennifer L. Bouldin 1/27/2023 **College Dean** | Len Frey 2/22/2023  **Vice Chancellor for Academic Affairs** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (if applicable)** |  |

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

Mullin; smullin@astate.edu; x3082

1. **Proposed starting term and Bulletin year for new course or modification to take effect**

Fall 2023, AY 2023-2024.

**Instructions:**

*Please complete all sections unless otherwise noted. For course modifications, sections with a “Modification requested?” prompt need not be completed if the answer is “No.”*

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|  | **Current (Course Modifications Only)** | **Proposed (New or Modified)**  *(Indicate “N/A” if no modification)* |
| **Prefix** |  | **BIO** |
| **Number\*** |  | **3693** |
| **Title** |  | **Vertebrate Natural History** |
| **Description\*\*** |  | **A survey of the vertebrate subphylum, with emphasis on the natural history of extant tetrapods of the regional ecosystems. Examining the ecological and evolutionary relationships among major taxonomic groups within the subphylum. Lecture two hours and lab three hours per week. Prerequisites, grade of “C” or better in both BIO 1303 and 1301. Fall.** |

***\**** (Confirm with the Registrar’s Office that number chosen has not been used before and is available for use. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

\*\*Forty words or fewer as it should appear in the Bulletin.

1. **Proposed prerequisites and major restrictions** **[Modification requested?]**

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

**BIO 1303 and 1301 – Biol. of Animals w/ lab – with a grade of “C” or better in both classes.**

* 1. Why or why not?

T**he proposed new course is meant to provide the content-area connection between lower-level courses (e.g., BIO 1303/1301) and the upper-level courses that focus on a specific taxonomic group (e.g., mammalogy, ornithology, etc.). Students taking the new course will be expected to know the fundamental characteristics of animal life, and apply that information specific to their understanding of the diversity of vertebrate life-histories.**

1. **No** Is this course restricted to a specific major?
   1. If yes, which major?
2. **Proposed course frequency [Modification requested?]**

(e.g. Fall, Spring, Summer; if irregularly offered, please indicate, “irregular.”) *Not applicable to Graduate courses.*

**Fall**

1. **Proposed course type [Modification requested?]**

Will this course be lecture only, lab only, lecture and lab, activity (e.g., physical education), dissertation/thesis, capstone, independent study, internship/practicum, seminar, special topics, or studio? Please choose one.

**Lecture and lab**

1. **Proposed grade type [Modification requested?]**

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

**Standard letter**

1. **No** Is this course dual-listed (undergraduate/graduate)?
2. **No** Is this course cross-listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross-listed course.)*

**a.** – If yes, please list the prefix and course number of the cross-listed course.

Enter text...

**b.** – **Yes / No** Can the cross-listed course be used to satisfy the prerequisite or degree requirements this course satisfies?

Enter text...

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

a. If yes, what program?

Enter text...

1. **No** Will this course be a one-to-one equivalent to a deleted course or previous version of this course (please check with the Registrar if unsure)?

a. If yes, which course?

Enter text...

**Course Details**

1. **Proposed outline** **[Modification requested?]**

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

Lecture Schedule

Week 1: Vertebrate traits and classification

Week 2: Evolutionary history and biogeography

Week 3: Generalized structure and function in vertebrates

Week 4: Regulatory processes

Week 5: The demands of an aquatic existence; jawless fishes

Week 6: Life-histories of cartilaginous and bony fishes

Week 7: The fin-to-limb transition; the demands of terrestrial life

Week 8: Life-histories of amphibians

Week 9: Life-histories of reptiles

Week 10: The impact of endothermy on life-history traits

Week 11: Life-histories of birds

Week 12: Life-histories of mammals

Week 13: Natural histories reflected in ecological relationships

Week 14: Guilds and communities of Arkansas vertebrates

Week 15: Ecological value and conservation of Arkansas vertebrates

Final, cumulative exam

Lab Schedule

Week 1: Introduction; semester field project & notebook

Week 2: Field trip

Week 3: Natural histories of amphibians

Week 4: Natural histories of reptiles

Week 5: Field trip focused on Arkansan amphibians and reptiles

Week 6: Laboratory practical exam #1

Week 7: Semester field project discussions

Week 8: Natural histories of fishes

Week 9: Field trip focused on Arkansan fishes

Week 10: Natural histories of birds

Week 11: Field trip focused on Arkansan birds

Week 12: Laboratory practical exam #2

Week 13: Natural histories of mammals; semester field project due.

Week 14: Field trip focused on Arkansan mammals

Week 15: Laboratory practical exam #3

1. **Proposed special features** **[Modification requested?]**

(e.g. labs, exhibits, site visitations, etc.)

One 2hr 50min lab period per week; ~30% of labs will be used for field trips to local sites.

1. **Department staffing and classroom/lab resources**

Faculty expertise already exists (Fluker, Mullin, Neuman-Lee, Rolland, Thigpen, Klotz). Lecture room and lab room; some labs will use specimens of vertebrates maintained in the dept. collections.

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

**No**

1. **Yes** Does this course require course fees?

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

**Justification**

**Modification Justification (Course Modifications Only)**

1. Justification for Modification(s)

**New Course Justification (New Courses Only)**

1. Justification for course. Must include:

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

The animal kingdom is sufficiently diverse that those species having backbones are covered only in the last week of the entry-level Biology of Animals course (BIO 1303/1301). As such, students are under-prepared for the detailed material that is presented in the senior-level courses that focus on specific vertebrate groups (e.g., BIO 4354, 4454, etc.). The proposed new course addresses this gap in our curriculum by presenting the life-history traits of Subphylum Vertebrata, with a focus on those species that occur in regional ecosystems (e.g., Arkansas Delta). By limiting coverage to regional species, students can gain a better understanding of those vertebrates that occur in their own backyards, and the senior-level courses can expand their taxonomic coverage to include a greater range of species. The proposed new course also provides complement to an existing course that focuses only on invertebrates (BIO 3322/3332 – Invert. Zoology w/ lab). In addition to familiarizing students with traits that diagnose different species, students will be introduced to basic surveying techniques that are appropriate for each type of vertebrate. In this manner, students will also be better prepared for other upper-level courses (e.g., BIO 4374 [Behavioral Ecology, which is currently undergoing a course modification request], 4613 [Conservation Biology, 4653/4651 [Wildlife Management w/ lab, etc.). In consultation with the instructor, each student will complete a semester-long field-based research project that focuses on a vertebrate species of the student’s choosing. Sections of the project will be evaluated throughout the semester, and the student will be expected to incorporate that feedback in the final project paper due at the end of the term.

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

The degree programs available through the Dept. of Biological Sciences:

1. Offer a curriculum that emphasizes acquisition of knowledge through integration of theory with practical laboratory and field studies;

2. Provide opportunities to develop critical scientific reasoning, communication skills and the appropriate use of technology;

3. Extend our skills and facilities in service to the public as well as to the scientific community.

The proposed new course will help students achieve these goals by providing content-area knowledge, and improving their analytical and scientific communication skills. These skills are broadly applicable for students pursuing careers in the private sector, non-profit organizations, or government agencies.

c. Student population served.

Undergraduate students in the following degree programs: BS-BIO (either emphasis area), BSE-BIO, or BS in Wildlife, Fisheries & Conservation (either emphasis area). Depending on interest, possibly attractive to students in the BS in Animal Science program.

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

The proposed new course will count as upper-level elective, and provide a transition between the freshman-level Biology of Animals course and the senior-level courses that focus on specific taxonomic groups or conceptual areas (i.e., behavioral ecology, wildlife management, etc.).

**Assessment**

**Assessment Plan Modifications (Course Modifications Only)**

1. Do the proposed modifications result in a change to the assessment plan?

*If yes, please complete the Assessment section of the proposal*

**Relationship with Current Program-Level Assessment Process (Course modifications skip this section unless the answer to #18 is “Yes”)**

1. 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?
2. **Students will be able to identify diversity as result of evolutionary and adaptive mechanisms while recognizing the underlying genetic principles and mechanisms of these processes.**
3. **Students will be able to 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.**
4. **Students will be able to construct hypothesis; design studies to test those hypotheses.**

**This course will address all three of these outcomes by focusing on those vertebrate species that occur in the Lower Mississippi Alluvial Valley, and encouraging students to consider how interactions between animals and the resources in their habitats have influenced the evolution of their life-history traits. The field-based semester project encapsulates all of PLO #3.**

1. Considering the indicated program-level learning outcome/s (from question #19), 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.*

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| **Program-Level Outcome 1 (from question #19)** | Students will be able to identify diversity as result of evolutionary and adaptive mechanisms. |
| Assessment Measure | The capstone exam (Majors Field Test purchased through ETS) is administered at the end of the course BIO 4021 (Biological Seminar) that students must take in their senior year. |
| Assessment  Timetable | Every Fall and Spring semester |
| Who is responsible for assessing and reporting on the results? | Instructors of Record for the BIO 4021 seminar course. |

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| **Program-Level Outcome 2 (from question #19)** | Students will be able to distinguish biological mechanisms and relate them to overall biological systems |
| Assessment Measure | The capstone exam (Majors Field Test purchased through ETS) is administered at the end of the course BIO 4021 that students must take in their senior year. |
| Assessment  Timetable | Every Fall and Spring semester. |
| Who is responsible for assessing and reporting on the results? | Instructors of Record for the BIO 4021 seminar course. |

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| **Program-Level Outcome 3 (from question #19)** | Students will be able to construct hypothesis; design studies to test those hypotheses |
| Assessment Measure | The capstone exam (Majors Field Test purchased through ETS) is administered at the end of the course BIO 4021 that students must take in their senior year. |
| Assessment  Timetable | Every Fall and Spring semester |
| Who is responsible for assessing and reporting on the results? | Instructors of Record for the BIO 4021 seminar course. |

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

**Course-Level Outcomes**

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

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| **Outcome 1** | Students will be able to identify a diverse array of vertebrate species, and associate collections of specific traits with the taxonomic groups within that subphylum. |
| Which learning activities are responsible for this outcome? | Lecture, labs with field-based exercises |
| Assessment Measure | Lecture exams, laboratory practicals |

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| **Outcome 2** | Students will be able to make connections between animal distributions, life-history traits, and the functioning of overall biological systems (e.g., energy use; circulatory systems; ecological niche) and how they work. |
| Which learning activities are responsible for this outcome? | Lecture, labs |
| Assessment Measure | Lecture exams, laboratory practicals |

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| **Outcome 3** | Students will be able to design a field-based study to that examines the natural history of a vertebrate species, and analyze and interpret the results of that study. |
| Which learning activities are responsible for this outcome? | Lab discussions and field trips |
| Assessment Measure | Semester project and paper |

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| **Outcome 4** | Students will be able to demonstrate writing skills that effectively communicate science. |
| Which learning activities are responsible for this outcome? | Semester field project |
| Assessment Measure | Semester project and paper |

*(Repeat if needed for additional outcomes)*

**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. Please include a before (with changed areas highlighted) and after of all affected sections.**  **\*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.** |

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| Because the AY22-23 version of the Bulletin is not available in .pdf format, it is impossible to cut/paste pages that would accurately reflect the addition of the proposed new course.  On the Course Listings webpage within the online Bulletin, insertions/changes would look something like this:  https://catalog.astate.edu/content.php?filter%5B27%5D=BIO&filter%5B29%5D=&filter%5Bcourse\_type%5D=-1&filter%5Bkeyword%5D=&filter%5B32%5D=1&filter%5Bcpage%5D=1&cur\_cat\_oid=3&expand=&navoid=78&search\_database=Filter#acalog\_template\_course\_filter  **Biology**  BIO 3694 – Vertebrate Natural History **Sem. Hrs: 4**  [course description for expanded drop-down]  A survey of the vertebrate subphylum, with emphasis on the natural history of extant tetrapods of the regional ecosystems. Examining the ecological and evolutionary relationships among major taxonomic groups within the subphylum. Lecture two hours and lab three hours per week. Special course fees may apply.  **Prerequisites:** grade of “C” or better in both BIO 1303 and 1301. Fall. |