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| For Academic Affairs and Research Use Only | |
| Proposal Number |  |
| 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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| David F. Gilmore 1/2/2021 **Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **COPE Chair (if applicable)** |
| Stephen J. Mullin 2/2/2021 **Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Head of Unit (if applicable)** |
| John Hershberger 2/9/2021  **College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Undergraduate Curriculum Council Chair** |
| Mary Elizabeth Spence 2/9/2021 **Office of Assessment (new courses only)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **Graduate Curriculum Committee Chair** |
| Lynn Boyd 2/12/2021 **College Dean** | Alan Utter 3/15/2021  **Vice Chancellor for Academic Affairs** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…  **General Education Committee Chair (if applicable)** |  |

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

David Gilmore, [dgilmore@astate.edu](mailto:dgilmore@astate.edu), 870-972-3263

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

Spring 2021, Bulletin 2021-2022

**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\*** |  | **4383** |
| **Title** |  | **Vertebrate Endocrinology** |
| **Description\*\*** |  | Examination of the vertebrate endocrine and neuroendocrine processes at various levels (molecular to organismal) with a focus on comparative endocrinology. Topics will include synthesis, transport, mechanisms of action and regulation, and dysfunctions of endocrine control. |

***\**** (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? Yes/No]**

(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 2013 and CHEM 1023

* 1. Why or why not?

Provide foundational biology and chemistry needed for class

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

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

Spring, even

1. **Proposed course type [Modification requested? Yes/No]**

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 only

1. **Proposed grade type [Modification requested? Yes/No]**

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

Standard letter

1. YES 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?

**Course Details**

1. **Proposed outline** **[Modification requested? Yes/No]**

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

**Topic**

**Week 1:** Introduction

**Week 2:** Synthesis, Metabolism, and Action of Hormones

**Week 3:** Hypothalamus and Pituitary Gland

**Week 4:** Thyroid Action

**Week 5:** Adrenal Action (Cortex)

**Week 6:** Adrenal Action (Medulla)

**Week 7:** Gonadal Action

**Week 8:** Gonadal Action

**Week 9:** Immunity and Endocrinology

**Week 10:** Feeding, Digestion, and Metabolism

**Week 11:** Calcium and Phosphate Homeostasis

**Week 12:** Endocrine Disruption

**Week 13:** Integrating endocrine responses

**Week 14:** Integrating endocrine responses

**Week 15:** Endocrine Diseases

1. **Proposed special features** **[Modification requested? Yes/No]**

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

none

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

In place

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

no

1. No 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)

Enter text...

**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)

This course would have the following objectives which cannot be fully obtained through any other course: 1) Firm understanding of basic cellular processes and signaling that control the endocrine system 2) Appreciation for the processes controlled and affected by the endocrine system 3) Recognition of the endocrine organs, tissues, cells, and hormones in vertebrate systems 4) Comprehend the influences that control the endocrine system and the impacts when the endocrine system does not function properly. The course will replace Human Endocrinology, a similar but more human-focused course, as an elective.

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.

This course will directly address all three of the Department of Biology objectives: 1) 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.  2) Students will be able to distinguish biological mechanisms (e.g., cellular respiration, photosynthesis, DNA replication; etc.) and relate/apply 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) Students will be able to construct hypothesis; design studies to test those hypotheses.

c. Student population served.

Students working on obtaining a B.S. in Biology with emphases in: biology, pre-professional science, zoology and B.S. in Wildlife, Fisheries, and Conservation, with an emphasis in: Wildlife

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

This will be an advanced course which will be suitable for upper level undergraduate students (and will be dual listed). This course will be offered as a 4000-level course because it will require students to have had a consistent exposure to biological concepts. This course will assume students have prerequisite knowledge that will be gained during the first 2 or 3 years of their university experience—such as cell structure and interactions and evolutionary principles. Further, this class will move at a rapid pace and assume that students are capable of effectively managing their time both in and out of class.

**Assessment**

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

1. **Yes / No** 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?

* 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.
* Students will be able to distinguish biological mechanisms (e.g., cellular respiration, photosynthesis, DNA replication; etc.) and relate/apply these mechanisms to overall biological systems (for example energy production and flow, circulatory systems in plants and animals, ecological systems) and how they work.
* Students will be able to construct hypothesis; design studies to test those hypotheses.

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 while recognizing the underlying genetic principles and mechanisms of these processes. |
| Assessment Measure | Senior Seminar Assessment |
| Assessment  Timetable | Students are assessed for this outcome during their senior year. |
| Who is responsible for assessing and reporting on the results? | The course instructor for the senior seminar is responsible for administering the assessment and coordinating with the department assessment committee. |
| **Program-Level Outcome 2 (from question #23)** | Students will be able to distinguish biological mechanisms (e.g., cellular respiration, photosynthesis, DNA replication; etc.) and relate/apply these mechanisms to overall biological systems (for example energy production and flow, circulatory systems in plants and animals, ecological systems) and how they work. |
| Assessment Measure | Senior Seminar Assessment |
| Assessment  Timetable | Students are assessed for this outcome during their senior year. |
| Who is responsible for assessing and reporting on the results? | The course instructor for the senior seminar is responsible for administering the assessment and coordinating with the department assessment committee. |
| **Program-Level Outcome 3 (from question #23)** | Students will be able to construct hypothesis; design studies to test those hypotheses. |
| Assessment Measure | Senior Seminar Assessment |
| Assessment  Timetable | Students are assessed for this outcome during their senior year. |
| Who is responsible for assessing and reporting on the results? | The course instructor for the senior seminar is responsible for administering the assessment and coordinating with the department assessment committee. |

*(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** | Firm understanding of basic cellular processes and signaling that control the endocrine system |
| Which learning activities are responsible for this outcome? | Lectures, in-class discussion, and final project of the integrative endocrine system |
| Assessment Measure | Rubric to score course evaluations (Exams and A final project: Integrated Endocrine Models) What will be your assessment measure for this outcome? |
| **Outcome 2** | Appreciation for the processes controlled and affected by the endocrine system |
| Which learning activities are responsible for this outcome? | Lectures, in-class discussion, and final project of the integrative endocrine system |
| Assessment Measure | Rubric to score course evaluations (Exams and A final project: Integrated Endocrine Models) |
| **Outcome 3** | Recognition of the endocrine organs, tissues, cells, and hormones in vertebrate systems |
| Which learning activities are responsible for this outcome? | Lectures, in-class discussion, and final project of the integrative endocrine system |
| Assessment Measure | Rubric to score course evaluations (Exams and A final project: Integrated Endocrine Models) |
| **Outcome 4** | Comprehend the influences that control the endocrine system and the impacts when the endocrine system does not function properly |
| Which learning activities are responsible for this outcome? | Lectures, in-class discussion, and final project of the integrative endocrine system |
| Assessment Measure | Rubric to score course evaluations (Exams and A final project: Integrated Endocrine Models) |

*(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.** |

**BIO 4163. Laboratory in BioTechniques II** Laboratory techniques in DNA/RNA isolation, analysis and applications, including PCR, reverse transcriptase PCR, recombinant DNA and the production of gene expression products. Laboratory 8 hours per week. Special course fees may apply. Prerequisite, BIO 4153. Spring.

**BIO 4173. Molecular Biology** Fundamental principles of molecular biology and their application. Emphasis on integrating technologies, past and present, to explore gene structure, regulation and function in driving biological processes. Prerequisite, BIO 3013 or instructor permission. Spring.

**BIO 4201. Issues in Human Ecology Laboratory** Two hours per week. To be taken concurrently with BIO 4202. Special course fees may apply. Summer, odd.

B**IO 4202. Issues in Human Ecology** A broad ecological approach demonstrating problems of modern society such as environmental deterioration, hunger, and resource depletion. Lecture two hours per week. Special course fees may apply. Summer, odd.

**BIO 4213. Human Genetics** Current advances in the understanding of the human genome. Lecture three hours per week. Prerequisite, BIO 3013. Special course fees may apply. Fall, odd.

**~~BIO 4223. Human Endocrinology~~** ~~Control of physiological processes by hormones. Types of chemical messengers, impact on cells, tissues and organs, and interrelationships of organ systems with respect to hormones will be studied. Important endocrine disorders will also be addressed. Special course fees may apply. Prerequisites, BIO 2013 or CHEM 4243, AND BIO 2223 and BIO 2221 or BIO 3233 and BIO 3231. Spring~~.

**BIO 4301. Aquatic Entomology** Identification, life histories, and ecology of aquatic ar­thropods, with emphasis on freshwater insects. For students in wildlife management, fisheries management, aquatic biology, and advanced entomology. Lecture one hour per week. Special course fees may apply. Prerequisites, BIO 3301, BIO 3303, and BIO 3123 or BIO 4371 and BIO 4373. Spring, odd.

**BIO 4302. Aquatic Entomology Laboratory** Four hours per week. Special course fees may apply. To be taken concurrently with BIO 4301. Spring, odd.

**BIO 4311. Fisheries Biology** Identification, ecology, food habits, management, and behavior of fishes. Lecture one hour per week. Special course fees may apply. Prerequisites, BIO 1303 and BIO 1301. Summer, even.

**BIO 4312. Fisheries Biology Laboratory** Four hours per week. To be taken concurrently with BIO 4311. Special course fees may apply. Summer, even.

**BIO 4322. Marine Mammals Laboratory** Hands on experience on the classification, anatomy, and behavior of marine mammals. Concurrent enrollment in BIO 4323. Special course fees may apply. Instructor permission required. Spring, odd.

**BIO 4323. Biology of Marine Mammals** This course analyzes the biology of marine mammals based on their adaptations to the aquatic environment from evolutionary, anatomical, physiological, and ecological perspectives. Special course fees may apply. Prerequisites will be at least two the following courses, BIO 3312, BIO 4352, BIO 4653, BIO 3023, or BIO 3033. Instructor permission required. Spring, odd

**ADD Vertebrate Endocrinology:**

BIO 4373. Animal Ecology The relationship of animals to their chemical, physical, and biological environment, and the distribution of animal life. Lecture three hours per week. Special course fees may apply. Prerequisites, BIO 3023. Fall, odd.

BIO 4382. Parasitology Parasites of vertebrates and plants, with emphasis on protozoan and helminth parasites of man and domestic animals. Lecture two hours per week. Special course fees may apply. Prerequisites, BIO 1301 and BIO 1303. Spring.

***BIO 4383. Vertebrate Endocrinology***

***Examination of the vertebrate endocrine and neuroendocrine processes at various levels (molecular to organismal) with a focus on comparative endocrinology. Topics will include synthesis, transport, mechanisms of action and regulation, and dysfunctions of endocrine control. Prerequisites, BIO 2013 and CHEM 1023. Spring, even.***

BIO 4392. Parasitology Laboratory   Four hours per week. Special course fees may apply. To be taken concurrently with BIO 4382. Spring.