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| For Academic Affairs and Research Use Only |
| Proposal Number | SM18 |
| CIP Code:  |  |
| Degree Code: |  |

**New or Modified Course Proposal Form**

**[ X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

|  |
| --- |
| **[ ]New Course, [ ]Experimental Course (1-time offering), or [x ]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 5/3/2022**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
| Stephen J. Mullin 5/4/2022**Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Head of Unit (if applicable)**   |
| John Hershberger 8/22/2022 Enter date…**College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Undergraduate Curriculum Council Chair** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Director of Assessment (new courses only)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Graduate Curriculum Committee Chair** |
| Lynn Boyd 8/24/2022**College Dean** | Alan Utter 9/12/2022**Vice Chancellor for Academic Affairs** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**General Education Committee Chair (if applicable)**   |  |

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

Tanja McKay; tmckay@astate.edu; 972-3240

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

Spring 2023.

**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** | **N/A** |
| **Number\*** | **3313** | **N/A** |
| **Title** (include a short title that’s 30 characters or fewer) | **Economic Entomology** | **N/A** |
| **Description\*\*** | **Life history, distribution, and control of injurious insects. Lecture three hours per week. Special course fees may apply. Prerequisites, BIO 1301 and BIO 1303. Spring.** | Emphasis on the scientific principles of integrated pest management to control insects and other arthropod pests. Prerequisites, BIO 1301 and BIO 1303; or, C or better in both PSSC 1301 and PSSC 1303, or in both ANSC 1621 and ANSC 1613. Spring. |

 ***\**** 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 (excepting prerequisites and other restrictions) as it should appear in the Bulletin.

1. **Proposed prerequisites and major restrictions** **[Modification requested? Yes/No] Yes**

(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 / No** Are there any prerequisites?
	1. If yes, which ones?

Yes. Currently the prerequisite is Biology of Animals lab and lecture, BIO 1301 and BIO 1303. This prerequisite works for students in Biology programs but not for students from the College of Agriculture. Therefore, we wish to add PSSC 1301 and PSSC 1303 with a C or better, or ANSC 1621 and ANSC 1613 with a C or better.

* 1. Why of why not?

Students from the College of Agriculture need an introductory class for this 3000-level course. See further justification **under item #16.**

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

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

**It would remain Spring**

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

1. **Proposed grade type [Modification requested? Yes/No] 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 / No** Is this course dual-listed (undergraduate/graduate)? **No**
2. **Yes / No** Is this course cross-listed? **No**

*(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. **Yes / No** Is this course in support of a new program? **No**

a. If yes, what program?

 Enter text...

1. **Yes / 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)? n/a

a. If yes, which course?

Enter text...

**Course Details**

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

Enter text...

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

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

Enter text...

1. **Department staffing and classroom/lab resources** **No**

No changes in staff and classroom.

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

 No

1. **Yes / No** Does this course require course fees? **No**

 *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)

Students who major in Plant and Soil Science need to take either General Entomology lecture and lab (BIO 3303 and BIO 3301) or Economic Entomology lecture and lab (BIO 3313 and BIO 3311) for their degree. These students do not usually take Biology of Animals lecture and lab (BIO 1303 and BIO 1301), however, and there is no room in their degree plan to add Biology of Animals to the curriculum. We have provided overrides to these students recently, but this creates two issues. First, it seems unfair to demand more of Biology students than Agriculture students. Second, Agriculture students often lack the minimum knowledge necessary to be successful in either of these 3000-level entomology courses. Therefore, this modification to change the prerequisites is needed. The prerequisites being added would ensure that students have appropriate introductory knowledge for either of these 3000-level courses. After discussion with Dr. Donald Kennedy, Associate Dean of Agriculture, it appears that a C or better in both PSSC 1301 and PSSC 1303, or in both ANSC 1621 and ANSC 1613, would be needed to match the level of expectations in BIO 1303 and 1301.

**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)

 Enter text...

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.

 Enter text...

c. Student population served.

Enter text...

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

Enter text...

**Assessment**

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

1. **Yes / No** Do the proposed modifications result in a change to the assessment plan? **No**

 *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?

Enter text...

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.*

|  |  |
| --- | --- |
| **Program-Level Outcome 1 (from question #19)** | Type outcome here. What do you want students to think, know, or do when they have completed the course? |
| Assessment Measure | Please include direct and indirect assessment measure for outcome.  |
| Assessment Timetable | What semesters, and how often, is the outcome assessed? |
| Who is responsible for assessing and reporting on the results? | Who (person, position title, or internal committee) is responsible for assessing, evaluating, and analyzing results, and developing action plans? |

 *(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** | Type outcome here. What do you want students to think, know, or do when they have completed the course? |
| Which learning activities are responsible for this outcome? | List learning activities. |
| Assessment Measure  | What will be your assessment measure for this outcome?  |

*(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.**  |

Before

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| --- |
| **Biology** |
|    | •  [BIO 403V - Special Problems in Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3966) **Sem. Hrs:** **Variable** |
|    | •  [BIO 404V - Special Topics in Biological Sciences](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3967) **Sem. Hrs:** **Variable** |
|    | •  [BIO 1013 - Making Connections Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3914) **Sem. Hrs:** **3** |
|    | •  [BIO 1023 - Biological Inquiry](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3915) **Sem. Hrs:** **3** |
|    | •  [BIO 1301 - Biology of Animals Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3916) **Sem. Hrs:** **1** |
|    | •  [BIO 1303 - Biology of Animals](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3917) **Sem. Hrs:** **3** |
|    | •  [BIO 1501 - Biology of Plants Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3918) **Sem. Hrs:** **1** |
|    | •  [BIO 1503 - Biology of Plants](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3919) **Sem. Hrs:** **3** |
|    | •  [BIO 2011 - Biology of the Cell Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3920) **Sem. Hrs:** **1** |
|    | •  [BIO 2013 - Biology of the Cell](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3921) **Sem. Hrs:** **3** |
|    | •  [BIO 2042 - Biotechnology in Global Society](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3922) **Sem. Hrs:** **2** |
|    | •  [BIO 2101 - Microbiology for Nursing and Allied Health Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3923) **Sem. Hrs:** **1** |
|    | •  [BIO 2103 - Microbiology for Nursing and Allied Health](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3924) **Sem. Hrs:** **3** |
|    | •  [BIO 2201 - Human Anatomy and Physiology I Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3925) **Sem. Hrs:** **1** |
|    | •  [BIO 2203 - Human Anatomy and Physiology I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3926) **Sem. Hrs:** **3** |
|    | •  [BIO 2221 - Human Anatomy and Physiology II Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3927) **Sem. Hrs:** **1** |
|    | •  [BIO 2223 - Human Anatomy and Physiology II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3928) **Sem. Hrs:** **3** |
|    | •  [BIO 3011 - Genetics Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3929) **Sem. Hrs:** **1** |
|    | •  [BIO 3013 - Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3930) **Sem. Hrs:** **3** |
|    | •  [BIO 3023 - Principles of Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3931) **Sem. Hrs:** **3** |
|    | •  [BIO 3051 - Try Out the Classroom](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3933) **Sem. Hrs:** **1** |
|    | •  [BIO 3201 - Introduction to Medical and Dental Practices](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3934) **Sem. Hrs:** **1** |
|    | •  [BIO 3203 - Pathophysiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3935) **Sem. Hrs:** **3** |
|    | •  [BIO 3211 - Techniques for Medical Exam Test Taking](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3936) **Sem. Hrs:** **1** |
|    | •  [BIO 3221 - Human Structure and Function I Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3937) **Sem. Hrs:** **1** |
|    | •  [BIO 3223 - Human Structure and Function I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3938) **Sem. Hrs:** **3** |
|    | •  [BIO 3231 - Human Structure and Function II Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3939) **Sem. Hrs:** **1** |
|    | •  [BIO 3233 - Human Structure and Function II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3940) **Sem. Hrs:** **3** |
|    | •  [BIO 3241 - Physical Diagnosis](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3941) **Sem. Hrs:** **1** |
|    | •  [BIO 3251 - Introduction to Pathology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3942) **Sem. Hrs:** **1** |
|    | •  [BIO 3261 - Health Coaching I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3943) **Sem. Hrs:** **1** |
|    | •  [BIO 3271 - Health Coaching II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3944) **Sem. Hrs:** **1** |
|    | •  [BIO 3301 - General Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3945) **Sem. Hrs:** **1** |
|    | •  [BIO 3303 - General Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3947) **Sem. Hrs:** **3** |
|    | •  [BIO 3311 - Economic Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3948) **Sem. Hrs:** **1** |
|    | •  [BIO 3313 - Economic Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3950) **BIO 3313 – Economic Entomology****Sem. Hrs:** **3**Life history, distribution, and control of injurious insects. Lecture three hours per week. Spring. Special course fees may apply.**Prerequisites:** [BIO 1301](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#tt650) and [BIO 1303](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#tt6316) |
|    | •  [BIO 3322 - Invertebrate Zoology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3951) **Sem. Hrs:** **2** |
|    | •  [BIO 3332 - Invertebrate Zoology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3952) **Sem. Hrs:** **2** |
|    | •  [BIO 3501 - Wild Flowers of Arkansas](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3953) **Sem. Hrs:** **1** |
|    | •  [BIO 3511 - Wild Flowers of Arkansas Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3954) **Sem. Hrs:** **1** |
|    | •  [BIO 3541 - Plant Pathology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3955) **Sem. Hrs:** **1** |
|    | •  [BIO 3542 - Plant Pathology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3956) **Sem. Hrs:** **2** |
|    | •  [BIO 3553 - Economic Botany](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3957) **Sem. Hrs:** **3** |
|    | •  [BIO 3673 - Human Dimensions of Natural Resources](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3958) **Sem. Hrs:** **3** |
|    | •  [BIO 4011 - Microtechnique](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3961) **Sem. Hrs:** **1** |
|    | •  [BIO 4012 - Microtechnique Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3962) **Sem. Hrs:** **2** |
|    | •  [BIO 4013 - Population Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3963) **Sem. Hrs:** **3** |
|    | •  [BIO 4021 - Biological Seminar](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3964) **Sem. Hrs:** **1** |
|    | •  [BIO 4033 - Bioinformatics and Applications](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3965) **Sem. Hrs:** **3** |
|    | •  [BIO 4043 - Biometry](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16194) **Sem. Hrs:** **3** |
|    | •  [BIO 4053 - Applications in Biotechnology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3968) **Sem. Hrs:** **3** |
|    | •  [BIO 4063 - Biosafety and Ethics in Research](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3969) **Sem. Hrs:** **3** |
|    | •  [BIO 4083 - Evolution](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3932) **Sem. Hrs:** **3** |
|    | •  [BIO 4103 - Virology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3970) **Sem. Hrs:** **3** |
|    | •  [BIO 4104 - Microbiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3971) **Sem. Hrs:** **4** |
|    | •  [BIO 4111 - Immunology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3972) **Sem. Hrs:** **1** |
|    | •  [BIO 4113 - Immunology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3973) **Sem. Hrs:** **3** |
|    | •  [BIO 4123 - Cell Signaling](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3974) **Sem. Hrs:** **3** |
|    | •  [BIO 4131 - Cell Biology Lab](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3975) **Sem. Hrs:** **1** |
|    | •  [BIO 4133 - Cell Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3976) **Sem. Hrs:** **3** |
|    | •  [BIO 4143 - Pharmacology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3977) **Sem. Hrs:** **3** |
|    | •  [BIO 4153 - Laboratory in BioTechniques I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3978) **Sem. Hrs:** **3** |
|    | •  [BIO 4163 - Laboratory in BioTechniques II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3979) **Sem. Hrs:** **3** |
|    | •  [BIO 4173 - Molecular Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3980) **Sem. Hrs:** **3** |
|    | •  [BIO 4201 - Issues in Human Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3981) **Sem. Hrs:** **1** |
|    | •  [BIO 4202 - Issues in Human Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3982) **Sem. Hrs:** **2** |
|    | •  [BIO 4213 - Human Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3983) **Sem. Hrs:** **3** |
|    | •  [BIO 4301 - Aquatic Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3984) **Sem. Hrs:** **1** |
|    | •  [BIO 4302 - Aquatic Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3985) **Sem. Hrs:** **2** |
|    | •  [BIO 4311 - Fisheries Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3986) **Sem. Hrs:** **1** |
|    | •  [BIO 4312 - Fisheries Biology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3987) **Sem. Hrs:** **2** |
|    | •  [BIO 4324 - Comparative Vertebrate Anatomy](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16190) **Sem. Hrs:** **4** |
|    | •  [BIO 4332 - Animal Histology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3988) **Sem. Hrs:** **2** |
|    | •  [BIO 4333 - Marine Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3989) **Sem. Hrs:** **3** |
|    | •  [BIO 4341 - Animal Embryology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3990) **Sem. Hrs:** **1** |
|    | •  [BIO 4342 - Animal Histology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3991) **Sem. Hrs:** **2** |
|    | •  [BIO 4343 - Animal Embryology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3992) **Sem. Hrs:** **3** |
|    | •  [BIO 4354 - Mammalogy](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3993) **Sem. Hrs:** **4** |
|    | •  [BIO 4362 - Applied Aquaculture](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3995) **Sem. Hrs:** **2** |
|    | •  [BIO 4371 - Animal Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3997) **Sem. Hrs:** **1** |
|    | •  [BIO 4372 - Applied Fisheries](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3998) **Sem. Hrs:** **2** |
|    | •  [BIO 4373 - Animal Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3999) **Sem. Hrs:** **3** |
|    | •  [BIO 4383 - Vertebrate Endocrinology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4000) **Sem. Hrs:** **3** |
|    | •  [BIO 4384 - Parasitology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4001) **Sem. Hrs:** **4** |
|    | •  [BIO 4401 - Ichthyology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4002) **Sem. Hrs:** **1** |
|    | •  [BIO 4402 - Ichthyology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4003) **Sem. Hrs:** **2** |
|    | •  [BIO 4413 - Wildlife Program Internship](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4005) **Sem. Hrs:** **3** |
|    | •  [BIO 4421 - Ornithology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4006) **Sem. Hrs:** **1** |
|    | •  [BIO 4423 - Ornithology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4007) **Sem. Hrs:** **3** |
|    | •  [BIO 4433 - Field Experience in Marine Environments](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4008) **Sem. Hrs:** **3** |
|    | •  [BIO 4441 - Comparative Animal Physiology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4009) **Sem. Hrs:** **1** |
|    | •  [BIO 4443 - Comparative Animal Physiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4010) **Sem. Hrs:** **3** |
|    | •  [BIO 4454 - Herpetology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16191) **Sem. Hrs:** **4** |
|    | •  [BIO 4513 - Plant Physiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4013) **Sem. Hrs:** **3** |
|    | •  [BIO 4521 - Wetland Plant Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4014) **Sem. Hrs:** **1** |
|    | •  [BIO 4522 - Wetland Plant Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4015) **Sem. Hrs:** **2** |
|    | •  [BIO 4541 - Mycology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4016) **Sem. Hrs:** **1** |
|    | •  [BIO 4542 - Mycology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4017) **Sem. Hrs:** **2** |
|    | •  [BIO 4551 - Medical Mycology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4018) **Sem. Hrs:** **1** |
|    | •  [BIO 4552 - Medical Mycology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4019) **Sem. Hrs:** **2** |

After

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| **Biology** |
|    | •  [BIO 403V - Special Problems in Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3966) **Sem. Hrs:** **Variable** |
|    | •  [BIO 404V - Special Topics in Biological Sciences](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3967) **Sem. Hrs:** **Variable** |
|    | •  [BIO 1013 - Making Connections Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3914) **Sem. Hrs:** **3** |
|    | •  [BIO 1023 - Biological Inquiry](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3915) **Sem. Hrs:** **3** |
|    | •  [BIO 1301 - Biology of Animals Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3916) **Sem. Hrs:** **1** |
|    | •  [BIO 1303 - Biology of Animals](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3917) **Sem. Hrs:** **3** |
|    | •  [BIO 1501 - Biology of Plants Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3918) **Sem. Hrs:** **1** |
|    | •  [BIO 1503 - Biology of Plants](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3919) **Sem. Hrs:** **3** |
|    | •  [BIO 2011 - Biology of the Cell Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3920) **Sem. Hrs:** **1** |
|    | •  [BIO 2013 - Biology of the Cell](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3921) **Sem. Hrs:** **3** |
|    | •  [BIO 2042 - Biotechnology in Global Society](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3922) **Sem. Hrs:** **2** |
|    | •  [BIO 2101 - Microbiology for Nursing and Allied Health Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3923) **Sem. Hrs:** **1** |
|    | •  [BIO 2103 - Microbiology for Nursing and Allied Health](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3924) **Sem. Hrs:** **3** |
|    | •  [BIO 2201 - Human Anatomy and Physiology I Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3925) **Sem. Hrs:** **1** |
|    | •  [BIO 2203 - Human Anatomy and Physiology I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3926) **Sem. Hrs:** **3** |
|    | •  [BIO 2221 - Human Anatomy and Physiology II Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3927) **Sem. Hrs:** **1** |
|    | •  [BIO 2223 - Human Anatomy and Physiology II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3928) **Sem. Hrs:** **3** |
|    | •  [BIO 3011 - Genetics Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3929) **Sem. Hrs:** **1** |
|    | •  [BIO 3013 - Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3930) **Sem. Hrs:** **3** |
|    | •  [BIO 3023 - Principles of Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3931) **Sem. Hrs:** **3** |
|    | •  [BIO 3051 - Try Out the Classroom](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3933) **Sem. Hrs:** **1** |
|    | •  [BIO 3201 - Introduction to Medical and Dental Practices](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3934) **Sem. Hrs:** **1** |
|    | •  [BIO 3203 - Pathophysiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3935) **Sem. Hrs:** **3** |
|    | •  [BIO 3211 - Techniques for Medical Exam Test Taking](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3936) **Sem. Hrs:** **1** |
|    | •  [BIO 3221 - Human Structure and Function I Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3937) **Sem. Hrs:** **1** |
|    | •  [BIO 3223 - Human Structure and Function I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3938) **Sem. Hrs:** **3** |
|    | •  [BIO 3231 - Human Structure and Function II Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3939) **Sem. Hrs:** **1** |
|    | •  [BIO 3233 - Human Structure and Function II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3940) **Sem. Hrs:** **3** |
|    | •  [BIO 3241 - Physical Diagnosis](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3941) **Sem. Hrs:** **1** |
|    | •  [BIO 3251 - Introduction to Pathology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3942) **Sem. Hrs:** **1** |
|    | •  [BIO 3261 - Health Coaching I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3943) **Sem. Hrs:** **1** |
|    | •  [BIO 3271 - Health Coaching II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3944) **Sem. Hrs:** **1** |
|    | •  [BIO 3301 - General Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3945) **Sem. Hrs:** **1** |
|    | •  [BIO 3303 - General Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3947) **Sem. Hrs:** **3** |
|    | •  [BIO 3311 - Economic Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3948) **Sem. Hrs:** **1** |
|    | •  [BIO 3313 - Economic Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3950) **BIO 3313 - Economic Entomology** **Sem. Hrs:** **3**Emphasis on the scientific principles of integrated pest management to control insects and other arthropod pests. Spring.**Prerequisites**: BIO 1301 and BIO 1303; or, C or better in both PSSC 1301 and PSSC 1303, or in both ANSC 1621 and ANSC 1613.  |
|    | •  [BIO 3322 - Invertebrate Zoology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3951) **Sem. Hrs:** **2** |
|    | •  [BIO 3332 - Invertebrate Zoology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3952) **Sem. Hrs:** **2** |
|    | •  [BIO 3501 - Wild Flowers of Arkansas](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3953) **Sem. Hrs:** **1** |
|    | •  [BIO 3511 - Wild Flowers of Arkansas Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3954) **Sem. Hrs:** **1** |
|    | •  [BIO 3541 - Plant Pathology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3955) **Sem. Hrs:** **1** |
|    | •  [BIO 3542 - Plant Pathology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3956) **Sem. Hrs:** **2** |
|    | •  [BIO 3553 - Economic Botany](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3957) **Sem. Hrs:** **3** |
|    | •  [BIO 3673 - Human Dimensions of Natural Resources](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3958) **Sem. Hrs:** **3** |
|    | •  [BIO 4011 - Microtechnique](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3961) **Sem. Hrs:** **1** |
|    | •  [BIO 4012 - Microtechnique Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3962) **Sem. Hrs:** **2** |
|    | •  [BIO 4013 - Population Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3963) **Sem. Hrs:** **3** |
|    | •  [BIO 4021 - Biological Seminar](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3964) **Sem. Hrs:** **1** |
|    | •  [BIO 4033 - Bioinformatics and Applications](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3965) **Sem. Hrs:** **3** |
|    | •  [BIO 4043 - Biometry](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16194) **Sem. Hrs:** **3** |
|    | •  [BIO 4053 - Applications in Biotechnology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3968) **Sem. Hrs:** **3** |
|    | •  [BIO 4063 - Biosafety and Ethics in Research](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3969) **Sem. Hrs:** **3** |
|    | •  [BIO 4083 - Evolution](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3932) **Sem. Hrs:** **3** |
|    | •  [BIO 4103 - Virology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3970) **Sem. Hrs:** **3** |
|    | •  [BIO 4104 - Microbiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3971) **Sem. Hrs:** **4** |
|    | •  [BIO 4111 - Immunology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3972) **Sem. Hrs:** **1** |
|    | •  [BIO 4113 - Immunology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3973) **Sem. Hrs:** **3** |
|    | •  [BIO 4123 - Cell Signaling](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3974) **Sem. Hrs:** **3** |
|    | •  [BIO 4131 - Cell Biology Lab](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3975) **Sem. Hrs:** **1** |
|    | •  [BIO 4133 - Cell Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3976) **Sem. Hrs:** **3** |
|    | •  [BIO 4143 - Pharmacology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3977) **Sem. Hrs:** **3** |
|    | •  [BIO 4153 - Laboratory in BioTechniques I](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3978) **Sem. Hrs:** **3** |
|    | •  [BIO 4163 - Laboratory in BioTechniques II](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3979) **Sem. Hrs:** **3** |
|    | •  [BIO 4173 - Molecular Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3980) **Sem. Hrs:** **3** |
|    | •  [BIO 4201 - Issues in Human Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3981) **Sem. Hrs:** **1** |
|    | •  [BIO 4202 - Issues in Human Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3982) **Sem. Hrs:** **2** |
|    | •  [BIO 4213 - Human Genetics](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3983) **Sem. Hrs:** **3** |
|    | •  [BIO 4301 - Aquatic Entomology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3984) **Sem. Hrs:** **1** |
|    | •  [BIO 4302 - Aquatic Entomology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3985) **Sem. Hrs:** **2** |
|    | •  [BIO 4311 - Fisheries Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3986) **Sem. Hrs:** **1** |
|    | •  [BIO 4312 - Fisheries Biology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3987) **Sem. Hrs:** **2** |
|    | •  [BIO 4324 - Comparative Vertebrate Anatomy](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16190) **Sem. Hrs:** **4** |
|    | •  [BIO 4332 - Animal Histology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3988) **Sem. Hrs:** **2** |
|    | •  [BIO 4333 - Marine Biology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3989) **Sem. Hrs:** **3** |
|    | •  [BIO 4341 - Animal Embryology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3990) **Sem. Hrs:** **1** |
|    | •  [BIO 4342 - Animal Histology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3991) **Sem. Hrs:** **2** |
|    | •  [BIO 4343 - Animal Embryology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3992) **Sem. Hrs:** **3** |
|    | •  [BIO 4354 - Mammalogy](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3993) **Sem. Hrs:** **4** |
|    | •  [BIO 4362 - Applied Aquaculture](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3995) **Sem. Hrs:** **2** |
|    | •  [BIO 4371 - Animal Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3997) **Sem. Hrs:** **1** |
|    | •  [BIO 4372 - Applied Fisheries](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3998) **Sem. Hrs:** **2** |
|    | •  [BIO 4373 - Animal Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=3999) **Sem. Hrs:** **3** |
|    | •  [BIO 4383 - Vertebrate Endocrinology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4000) **Sem. Hrs:** **3** |
|    | •  [BIO 4384 - Parasitology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4001) **Sem. Hrs:** **4** |
|    | •  [BIO 4401 - Ichthyology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4002) **Sem. Hrs:** **1** |
|    | •  [BIO 4402 - Ichthyology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4003) **Sem. Hrs:** **2** |
|    | •  [BIO 4413 - Wildlife Program Internship](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4005) **Sem. Hrs:** **3** |
|    | •  [BIO 4421 - Ornithology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4006) **Sem. Hrs:** **1** |
|    | •  [BIO 4423 - Ornithology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4007) **Sem. Hrs:** **3** |
|    | •  [BIO 4433 - Field Experience in Marine Environments](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4008) **Sem. Hrs:** **3** |
|    | •  [BIO 4441 - Comparative Animal Physiology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4009) **Sem. Hrs:** **1** |
|    | •  [BIO 4443 - Comparative Animal Physiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4010) **Sem. Hrs:** **3** |
|    | •  [BIO 4454 - Herpetology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=16191) **Sem. Hrs:** **4** |
|    | •  [BIO 4513 - Plant Physiology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4013) **Sem. Hrs:** **3** |
|    | •  [BIO 4521 - Wetland Plant Ecology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4014) **Sem. Hrs:** **1** |
|    | •  [BIO 4522 - Wetland Plant Ecology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4015) **Sem. Hrs:** **2** |
|    | •  [BIO 4541 - Mycology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4016) **Sem. Hrs:** **1** |
|    | •  [BIO 4542 - Mycology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4017) **Sem. Hrs:** **2** |
|    | •  [BIO 4551 - Medical Mycology Laboratory](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4018) **Sem. Hrs:** **1** |
|    | •  [BIO 4552 - Medical Mycology](https://catalog.astate.edu/preview_course_nopop.php?catoid=3&coid=4019) **Sem. Hrs:** **2** |