

Term Information

Effective Term Autumn 2017

General Information

Course Bulletin Listing/Subject Area Biology
Fiscal Unit/Academic Org Introductory Biology - D0326
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 1114E
Course Title Biological Sciences: Form, Function, Diversity, and Ecology
Transcript Abbreviation Form Funct & Ecol
Course Description Exploration of biology and biological principles; evolution and speciation, diversity in structure, function, behavior, and ecology among prokaryotes and eukaryotes. A broad introduction to biology comprises both Biology 1113E and 1114E.
Semester Credit Hours/Units Fixed: 4

Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Lima

Prerequisites and Exclusions

Prerequisites/Corequisites Honors standing; and Math 1149, 1150, or above, or Math Placement Level L. Prereq or concur: Chem 1210 (121), 1610, or 1910H (201H), or permission of course coordinator.
Exclusions Not open to students with credit for 116 or 116H.

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.0101
Subsidy Level Baccalaureate Course
Intended Rank Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

General Education course:

Biological Science

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Successful students will be able to: Explain the mechanisms of microevolution.
- Successful students will be able to: Use concepts associated with microevolution and macroevolution to explain patterns of speciation and extinction.
- Successful students will be able to: Explain mechanisms of sexual selection and the evolution of social behavior.
- Successful students will be able to: Describe methods used to infer evolutionary relationships.
- Successful students will be able to: Explain the relationship between evolutionary hypotheses and the biological classification system.
- Successful students will be able to: Use the geologic time scale to identify when major biological evolutionary events occurred.
- Successful students will be able to: Characterize the biological domains and kingdoms.
- Successful students will be able to: Describe the major features of and evolutionary relationships within the Kingdoms Fungi, Plantae, and Animalia.
- Successful students will be able to: Describe the major groups of animals in terms of their body plan, embryology, and symmetry.
- Successful students will be able to: Explain ecological phenomena related to populations and communities in terms of basic mathematical models.
- Successful students will be able to: Trace chemicals and energy through an ecosystem to explain human and global impacts of perturbations.
- Successful students will be able to: Describe the interrelationship between biodiversity and community interactions, such as such as predation, competition, and symbiosis.
- Successful students will be able to: Understand the scientific evidence for climate change.
- Successful students will be able to: Use online search engines to explore primary scientific literature.
- Successful students will be able to: Summarize scientific research.

Content Topic List

- Mechanisms of Evolution
- Diversity of Life
- Prokaryotes & Eukaryotes
- Plant Form & Function
- Fungi
- Animal Form & Function
- Behavior
- Ecology

Attachments

- cover letter.docx: Cover Letter
(Cover Letter. Owner: Misicka, Matthew Alan)
- 2016_Spring_BIOLOGY_1114_NorrisR.docx: SAMPLE 1114 Syllabus
(Syllabus. Owner: Misicka, Matthew Alan)
- 2017_Autumn_BIOLOGY_1114E.docx: PROPOSED 1114E Syllabus
(Syllabus. Owner: Misicka, Matthew Alan)

Comments

Workflow Information

| Status | User(s) | Date/Time | Step |
|------------------|---|---------------------|------------------------|
| Submitted | Misicka, Matthew Alan | 10/31/2016 12:55 PM | Submitted for Approval |
| Approved | Misicka, Matthew Alan | 10/31/2016 12:56 PM | Unit Approval |
| Approved | Fink, Steven Scott | 11/01/2016 01:12 PM | College Approval |
| Pending Approval | Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole | 11/01/2016 01:12 PM | ASCCAO Approval |
| Pending Approval | Toohey, Meagan Elizabeth | 11/03/2016 03:08 PM | Ad-Hoc Approval |



20 October 2016

Re: Establishment of Honors Embedded BIO 1113E and BIO 1114E on the Lima Campus

Dear Curriculum Committee,

We are requesting that embedded honors sections be allowed for BIO 1113E and BIO 1114E on the Lima Campus. The primary rationale for the change is that we would like more flexibility in scheduling, given the change in course demand we are observing. That is, as more students are admitted with College Credit + and AP credit, demand for some of our introductory courses are projected to decrease. We foresee the possibility, for example, of not having enough demand to run separate honors sections in BIO 1113 and BIO 1114, in which case the ability to embed honors students would allow us to maintain our honors offerings.

The embedded honors courses will provide opportunities for embedded instruction, honors-only instruction, field trips, and honors-led group activities with their peers (peer-led teaching). We envision honors embedded courses to consist of an embedded lecture with a unique lab section just for honors students. BIO 1113E and 1114E have an additional hour of instruction which will allow for expanded course content and unique honors experiences.

Attached are detailed descriptions of the course details including the syllabi. Thank you for considering the addition of this honors embedded course.

Sincerely,

A handwritten signature in blue ink that reads 'Jacqueline Augustine'.

Dr. Jacqueline Augustine
Associate Professor
augustine.63@osu.edu, 419-995-8237

1) Enhanced student/faculty interaction

The course will offer students enhanced student/faculty interaction through an additional hour of classtime that would include just honors students and faculty.

Course set-up:

Embedded: 1-hour lectures, 3 times per week

Honors-only lab section: 3 hours per week

Honors-only enhanced interactions/recitation: 1 hour per week

2) Enhanced expectations and experiences

Because there will continue to be honor-only lab sections, and honors-only recitation, students will get ample opportunity to interact with other students pursuing the embedded option.

Additional enhancements to the honors experience will include at least two of the following:

- a. A related research project and enhanced laboratory experience. The honors course will conduct a DNA-based experiment which will involve DNA extraction, PCR, and electrophoresis. Most of the work will be conducted during the additional hour of classtime, but students may have to visit the experiment for brief periods outside of class.
- b. Develop a teaching tool related to the course. The students will brainstorm and develop teaching tools to give in-depth coverage of course material during the additional hour of instruction. They will vote on which teaching tool is the best. The teaching tool that was the best will then be presented to the embedded lecture, and the honors students will guide the other students. These activities will be used as review material before exams.
- c. Field trip to a research facility, prominently known guest speaker, or regional conference.
- d. Additional readings from the scholarly literature to enhance content. Students will be in charge of picking a manuscript and leading the discussion of the manuscript.
- e. Debate. Students may gather information and debate one or both sides of a topic, such as whether genetic experiments should be conducted on human subjects, the best way to combat global climate change, or whether hunting of bison and wolves should be allowed in Yellowstone.

3) A description of the grading

The same amount of points will be awarded for all material that is completed by both honors and non-honors students. Additional points will be awarded based on the additional work that is required. The embedded honors students grade will be awarded base on the number of points earned compared to the total number of points that were available. See the attached syllabi for additional details.

4) Place in the curriculum

This course is the first course for biology majors, and is required. It can also be used as a GE science course. It holds the same place in the curriculum map as BIO 1113 and 1114.

5) Attached syllabi.

The syllabus for the regular courses (BIO 1113 and BIO 1114) and the honors embedded addendum.

FORM, FUNCTION, DIVERSITY AND ECOLOGY – BIO 1114
SPRING 2016

DR. RYAN W. NORRIS

Office: Science 334 Phone: 419-890-8360 Email: norris.667@osu.edu
Office Hours: M 1:20-2:20, F 1:20-2:20 or by appointment.

COURSE FORMAT:

BIO 114 consists of three 1-hour lectures and one 3-hour lab. Lectures will provide an introduction to the topic of interest. Labs provide hands-on experiences to develop quantitative and critical thinking skills.

Lecture: MWF 12:20 PM - 1:15 PM in LL170

Lab: W or F 8:00 AM - 11:00 AM in LL370

REQUIRED TEXT:

Reece, J. B. et al. 2014. Campbell Biology, 10th Edition. Pearson Benjamin Cummings, San Francisco, CA. ISBN-10: 0321775651 • ISBN-13: 9780321775658

COURSE OBJECTIVE:

This course is the second introductory biology course for biology majors. Students should enroll in lecture and lab concurrently. This course is designed to introduce the student to evolution, diversity of structure, function, behavior and ecology among prokaryotes and eukaryotes. The course focuses on appreciating the evolution of the diversity of life as well as the relationships among organisms and their environment.

It is hoped that by gaining a better understanding of the biological richness of this planet, you will better appreciate each organism's role in the environment. Furthermore, such understanding is absolutely crucial for tackling the environmental issues that threaten this diversity and have contributed to the current global 'biodiversity crisis', in which species are going extinct at an alarming rate. We cannot assess the magnitude of this loss, nor hope to save our dwindling biological resources unless we know what biodiversity currently exists on this planet.

The specific objectives for this course include:

- 1.) Learn biological diversity and the relatedness among organisms
- 2.) Describe how organisms interact with their environment
- 3.) Gain scientific literacy by reading scientific articles
- 4.) Learn quantitative skills used to analyze and interpret biological information
- 5.) Discover how humans affect their environment, and the importance of the environment for human welfare

How students meet the GEC objectives through this course

In Biology 1114, majors in the biological sciences meet the GEC Natural Science Learning Objectives in multiple ways. The course is an in-depth study of the laws, structures, and interrelationships within the biological universe. Students gain an understanding of the foundations of modern biology by studying organismal diversity, ecological relationships within and among species, behavior, and the evolutionary and ecological constraints placed upon form and function, with particular emphasis on plants and animals. In the laboratory activities, students not only reinforce the biological concepts introduced in lecture, but also learn scientific reasoning and methods. By studying the history of and key discoveries in biology, students learn the interrelationship between technology and scientific methods and the social and philosophical ramifications of biological insights and discoveries.

LEARNING OUTCOMES:

These are guidelines to where students should focus their learning in each of the four main topics covered in Biology 1114.

Successful students will be able to:

1. Evolution
 - a) Explain the mechanisms of microevolution.
 - b) Use concepts associated with microevolution and macroevolution to explain patterns of speciation and extinction
 - c) Explain mechanisms of sexual selection and the evolution of social behavior.
 - d) Describe methods used to infer evolutionary relationships.
 - e) Explain the relationship between evolutionary hypotheses and the biological classification system.
 - f) Use the geologic time scale to identify when major biological evolutionary events occurred.
2. Diversity of life
 - a) Characterize the biological domains and kingdoms.
 - b) Describe the major features of and evolutionary relationships within the Kingdoms Fungi, Plantae, and Animalia.
 - c) Describe the major groups of animals in terms of their body plan, embryology, and symmetry.
3. Ecology and climate change
 - a) Explain ecological phenomena related to populations and communities in terms of basic mathematical models.
 - b) Trace chemicals and energy through an ecosystem to explain human and global impacts of perturbations.
 - c) Describe the interrelationship between biodiversity and community interactions, such as such as predation, competition, and symbiosis.
 - d) Understand the scientific evidence for climate change.
4. Increased scientific literacy and ability to use online search engines to explore primary scientific literature. Improve writing skills and ability to summarize scientific research.

GRADING POLICY:

Lecture and laboratory sections are graded together. Course grades will be based upon the percentage of total points that the student accumulates from assignments. The course grade will be determined as follows:

| | |
|--|-------------------|
| Exam 1 | 100 points |
| Exam 2 | 100 points |
| Exam 3 | 100 points |
| Final Exam | 150 points |
| Quizzes and Laboratory Assignments (lowest is dropped, 15 total) (10 pts each x 14) | 140 points |
| Lab write-ups (25 pts each x 4) | 100 points |
| Lab practical | 50 points |
| Article summaries (15 pts each x 4)..... | 60 points |
| <u>Attendance and Discussion</u> | <u>50 points</u> |
| Total..... | 750 points |

The distribution for a letter grade is based upon the following standard OSU grading scale:
93 - 100 (A); 90 - 92.9 (A-); 87 - 89.9 (B+); 83 - 86.9 (B); 80 - 82.9 (B-); 77 - 79.9 (C+);
73 - 76.9 (C); 70 - 72.9; (C-); 67 - 69.9 (D+); 60 - 66.9 (D); Below 60 (E).

EXAMS:

Exams will cover all assigned reading material, assignments, and information given during lecture. The exam will consist of multiple choice, true/false, short answer, and long answer. The Final Exam will include a comprehensive component.

MISSED EXAMS:

If you know in advance that you will not be present during a scheduled exam, please contact me to set up an alternate time *before* the scheduled exam. If you are ill or there is some other emergency the day of the exam, I MUST be notified the day of the exam and provided documentation to support the reason for your absence within one week. Make-up exams will be different from the regular exam and may not follow the same format.

If you miss lab, you will receive a zero for all work unless you contact me with a university excused absence. Written assignments are due at the beginning of class on the due date. Late work may be accepted on a case-by-case basis, but when it is accepted you will be penalized 10% a day (the first 10% is deducted if you fail to turn it in at the beginning of class).

GENERAL EXPECTATIONS AND ATTENDANCE:

Students are responsible for all information given during class whether the student is in attendance or not. Students who miss class are responsible for getting missed material including handouts from classmates. I strongly suggest that you read the relevant chapters before we are scheduled to cover them in lecture. Attendance in labs is particularly critical. Labs require special setup that can often not be done outside of regular class time. If you must be absent in lab, please try to attend the other lab section offered that week if at all possible.

Note on extended absences: If you must miss more than two classes due to extended illness, you need to show me a doctor's excuse. Please submit the form at <http://www.shc.ohio-state.edu/posts/documents/absence-excuse-form.pdf> . THE STUDENT MUST SUBMIT THIS FORM WITHIN 48 HOURS OF THE SECOND MISSED CLASS (submission via email preferred).

LAB SAFETY:

Eating, drinking, and the use of cell phones (including text messaging) are prohibited in the lab room.

ACADEMIC HONESTY:

OSU's University Code of Student Conduct will be strictly enforced. Copying information (directly or indirectly) from other students and not giving credit to authors for information used in a paper are all considered acts of dishonesty and will be reported to the OSU Committee on Academic Misconduct (COAM) in Columbus. The COAM will determine the appropriate penalty which may include loss of points for that assignment, a failing grade in the class, or expulsion from the University. Cheating during an exam includes providing answers for another student or receiving answers from another student. Plagiarism is also a serious academic offense. Never copy use someone else's ideas or writing without properly citing that source. Please familiarize yourself with the University Code of Student Conduct and COAM at:

<http://oaa.osu.edu/coam/home.html>

<http://oaa.osu.edu/coam/faq.html#whatisacademicmisconduct>

ACCOMMODATIONS FOR DISABILITIES:

The Americans with Disabilities Act of 1990 (ADA) provides protection from illegal discrimination for qualified individuals with disabilities. Students requesting instructional accommodations due to disabilities must arrange for such accommodations by contacting Karen Meyer in the Office for Disability Services. She can be reached at 148 Public Services Building, by phone 419-995-8453, or by email meyer.193@osu.edu. Presenting documentation of a student's disability early (before the beginning of classes) is helpful and often necessary to secure needed materials in a timely way. Accommodations should be requested a week PRIOR to affected due dates or exams.

COUNSELING SERVICES:

If you are experiencing personal difficulties, whether related to class or not, you have access to the services provided by the OSU Lima Counseling & Consultation Services. All current OSU students are eligible for services at no charge. Please contact LCCS at 419-995-8272 or 419-995-8698.

STUDENT ADVOCACY:

If you are experiencing difficulties navigating the campus experience, you have access to the services provided by the OSU Lima Student Advocacy Center. The Center will help with financial distress, cut through red tape, familiarize students with university policies and procedures, and link students to appropriate resources. All current OSU students are eligible for services at no charge. Please contact Gail Nelson at 419-995-8698 or nelson.700@osu.edu.

STATEMENT ON DIVERSITY:

The instructor of this course is committed to promoting a welcoming climate for all students. For more information on diversity, see the EEOB (<http://excelsior.biosci.ohio-state.edu/~eeob/drupal/?q=diversity>) or OSU (<http://www.osu.edu/diversity/>) websites. The instructor welcomes suggestions, questions, and comments. Any exchange of ideas will be conducted with confidentiality, safety, and respect as guiding principles.

SCHEDULE:

Schedule subject to change, but exams and due dates are unlikely to change.

| Week | Monday | Wednesday | Friday | Lab |
|---|---|---|--|---------------------------------|
| 1 – Jan 11 | Introduction | Evolution: Descent with modification <i>Chapter 22</i> | Evolution: Descent with modification | Lab 1 Sci Method I |
| 2 – Jan 18 | <i>No Class – MLK Day</i> | Evolution of Populations <i>Chapter 23</i> | Evolution of Populations | Lab 2 Sci Method II |
| 3 – Jan 25 | Evolution: speciation <i>Chapter 24</i> | Evolution: speciation | Evolution: History of Life <i>Chapter 25</i> | Lab 3 Hardy-Weinberg |
| 4 – Feb 1 | Evolution: History of Life | Special Topic: Evolution | Exam 1: Evolution | Lab 4 Hominid Evolution |
| 5 – Feb 8 | Organismal diversity: Phylogenetics & Tree of Life <i>Chapter 26</i> | Organismal diversity: Phylogenetics & Tree of Life | Organismal diversity: Viruses & Prokaryotes <i>Chapters 19 & 27</i> | Lab 5 Systematics |
| 6 – Feb 15 | Organismal diversity: Prokaryotes <i>Chapter 27</i> | Organismal diversity: Protists <i>Chapter 28</i> | Organismal diversity: Plants <i>Chapter 29</i> | Lab 6 Prokaryotes & Protists |
| 7 – Feb 22 | Organismal diversity: Plants | Organismal diversity: Plants <i>Chapter 30</i> | Organismal diversity: Plants | Lab 7 Plants |
| 8 – Feb 29 | Plant Form & Function <i>Chapter 35</i> | Special Topic: Biodiversity I | Exam 2: Organismal diversity I | Lab 8 Behavior |
| 9 – Mar 7 | Organismal diversity: Fungi | Organismal diversity: Invertebrates <i>Chapter 32</i> | Organismal diversity: Invertebrates | Lab 9 Fungi & Invertebrates |
| 10 – Mar 14 | <i>Spring break- No class</i> | | | |
| 11 – Mar 21 | Organismal diversity: Vertebrates <i>Chapter 33</i> | Organismal diversity: Vertebrates | Organismal diversity: Vertebrates | Lab 10 Vertebrates |
| 12 – Mar 28 | Animal Form and Function <i>Chapter 40</i> | Special Topic: Biodiversity II | Exam 3: Organismal diversity II | Lab 11 Ohio Biodiversity |
| 13 – April 4 | Ecology: Biosphere <i>Chapter 52</i> | Ecology: Biosphere | Ecology: Populations <i>Chapter 53</i> | Lab Practical |
| 14 – April 11 | Ecology: Populations | Ecology: Communities <i>Chapter 54</i> | Ecology: Communities | Lab 12 Ecology I |
| 15 – April 18 | Ecology: Ecosystems <i>Chapter 55</i> | Ecology: Ecosystems <i>Chapter 56</i> | Ecology: Conservation | Lab 13 Ecology II |
| 16 – April 25 | Special Topic: Ecology | | | |
| Final Exam Wednesday April 27 12:00 – 1:45 pm. | | | | |

FORM, FUNCTION, DIVERSITY AND ECOLOGY – BIO 1114E
AUTUMN 2017

DR. RYAN W. NORRIS

Office: Science 334 Phone: 419-890-8360 Email: norris.667@osu.edu
Office Hours: M 1:20-2:20, F 1:20-2:20 or by appointment.

COURSE FORMAT:

BIO 114 consists of three 1-hour lectures and one 3-hour lab. Lectures will provide an introduction to the topic of interest. Labs provide hands-on experiences to develop quantitative and critical thinking skills.

Lecture: MWF 12:20 PM - 1:15 PM in LL170

Lab: W or F 8:00 AM - 11:00 AM in LL370

REQUIRED TEXT:

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| Article summaries (15 pts each x 4)..... | 60 points |
| <u>Attendance and Discussion</u> | <u>50 points</u> |
| Honors Requirements | |
| Field trip attendance and journal | 20 points |
| Development and execution of peer-led teaching project | 35 points |
| Wolves in Ohio Debate | 10 points |
| DNA phylogeny experiment..... | 35 points |
| Total..... | 850 points |

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<http://oaa.osu.edu/coam/home.html>

<http://oaa.osu.edu/coam/faq.html#whatisacademicmisconduct>

ACCOMMODATIONS FOR DISABILITIES:

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COUNSELING SERVICES:

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STATEMENT ON DIVERSITY:

The instructor of this course is committed to promoting a welcoming climate for all students. For more information on diversity, see the EEOB (<http://excelsior.biosci.ohio-state.edu/~eeob/drupal/?q=diversity>) or OSU (<http://www.osu.edu/diversity/>) websites. The instructor welcomes suggestions, questions, and comments. Any exchange of ideas will be conducted with confidentiality, safety, and respect as guiding principles.

SCHEDULE: Schedule subject to change, but exams and due dates are unlikely to change.

| Week | Monday | Wednesday | Friday | Lab | Honors |
|----------------|---|--|--|---------------------------------|--|
| 1 – Aug 21 | Introduction | Evolution: Descent with modification <i>Chapter 22</i> | Evolution: Descent with modification | Lab 1 Sci Method I | Group Icebreakers & Intro to Peer-Led-Teaching |
| 2 – Aug 28 | Evolution: Descent with modification | Evolution of Populations <i>Chapter 23</i> | Evolution of Populations | Lab 2 Sci Method II | Development of Peer-led Activity |
| 3 – Sep 4 | No Class – Labor Day | Evolution: speciation | Evolution: History of Life <i>Chapter 25</i> | Lab 3 Hardy-Weinberg | Phylogeny Experiment Intro |
| 4 – Sep 11 | Evolution: History of Life | Special Topic: Evolution | Exam 1: Evolution | Lab 4 Hominid Evolution | Set up phylogeny experiment |
| 5 – Sep 18 | Organismal diversity: Phylogenetics & Tree of Life <i>Chapter 26</i> | Organismal diversity: Phylogenetics & Tree of Life | Organismal diversity: Viruses & Prokaryotes <i>Chapters 19 & 27</i> | Lab 5 Systematics | Testing of Peer-led Activity (Grps 1&2) |
| 6 – Sep 25 | Organismal diversity: Prokaryotes <i>Chapter 27</i> | Organismal diversity: Protists <i>Chapter 28</i> | Organismal diversity: Plants <i>Chapter 29</i> | Lab 6 Prokaryotes & Protists | Analyzing phylogenetic data |
| 7 – Oct 2 | Organismal diversity: Plants | Organismal diversity: Plants <i>Chapter 30</i> | Organismal diversity: Plants | Lab 7 Plants | Scientific writing |
| 8 – Oct 9 | Plant Form & Function <i>Chapter 35</i> | Special Topic: Biodiversity I | No Class – Fall Break | Lab 8 Behavior | Testing of Peer-led Activity (Grps 3&4) |
| 9 – Oct 16 | Exam 2: Organismal diversity I | Organismal diversity: Fungi & Invertebrates <i>Chapter 32</i> | Organismal diversity: Invertebrates | Lab 9 Fungi & Invertebrates | Field Trip Preparation Phylogeny Experiment Report Due |
| 10 – Oct 23 | Organismal diversity: Vertebrates <i>Chapter 33</i> | Organismal diversity: Vertebrates | Organismal diversity: Vertebrates | Lab 10 Vertebrates | Testing of Peer-led Activity (Grps 5&6) |
| 11 – Nov 6 | Animal Form and Function <i>Chapter 40</i> | Special Topic: Biodiversity II | No class – Veteran’s Day Observed | Lab 11 Ohio Biodiversity | Field Trip Journal Due |
| 12 – Nov 13 | Exam 3: Organismal diversity II | Ecology: Biosphere <i>Chapter 52</i> | Ecology: Populations <i>Chapter 53</i> | Lab Practical | Testing of Peer-led Activity (Grps 7&8) |
| 13 – Nov 20 | Ecology: Populations | No Class – Thanksgiving Break | No Class – Thanksgiving Break | Lab 12 Ecology I | Preparation for Debate |
| 14 – Nov 27 | Ecology: Ecosystems <i>Chapter 55</i> | Ecology: Ecosystems <i>Chapter 56</i> | Ecology: Conservation | Lab 13 Ecology II | Wolves in Ohio Debate |
| 15 – Dec 4 | Special Topic: Ecology | Special Topic: Ecology | | | |

Final Exam Day/Time: TBA