# COURSE SYLLABUS OUTLINE

**Course Title and Number:** Principles of Ecology BSC 320

 Semester and Year: Fall 2018

 Days/Time: Lecture: Tuesday and Thursday 11:00am-12:55pm, room S-376

 Lab: Monday Tuesday 1:00pm-3:50pm, room S-382

**Instructor:**

Name: Dr. Shane M. Welch

Office: S-380

Office Hours: Tuesday & Thursday 1:30-2:30, or by appointment.

Office Phone: 304 696-6111

Email: welchsh@marshall.edu

**Office Hours:** I make every effort to keep scheduled office hours. Please be aware that sometimes there are conflicts with required meetings, and I cannot be present. When possible, I will make announcements in class or by email if I am unable to make scheduled office hours. I strongly encourage you to make an appointment if you need to meet with me.

**Course Description**: A fundamental approach to the basic principles underlying the interrelationships of organisms with their biotic and abiotic environments. A variety of aquatic and terrestrial ecosystems will be studied in the field and in the laboratory.

**Credit:** 4 hours in biological sciences

**Prerequisites:** BSC 121 with a grade of *C* or better.

**University Policies**: By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <http://www.marshall.edu/academic-affairs/?page_id=802>

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

**Text Information**:

Required Text:

Lecture text: Smith, Thomas M., and Robert L. Smith. 2012. *Elements of Ecology, 7th, 8th, or 9th ed.* Benjamin Cummings, Boston, MA.

Lab texts: *Ecological Investigations: Laboratory Manual for Principles of Ecology*.

 Recommended: Pechenik, Jan A. 2010. *A Short Guide to Writing About Biology, 7th ed*. Pearson/Longman, NY.

**Computer Requirements:** Response Card RFC-03 (LCD) Turning Technologies, Microsoft Word, and internet

**Desired Learner Outcomes/Objectives:**

1. To improve your understanding of ecology.

2. To improve your ability to think scientifically.

3. To improve your ability to communicate scientific information.

4. To expand your understanding of natural systems so that you can make informed decisions about the world you live in.

Expected-learning-outcomes-rubric: how learning outcomes will be practiced and assessed.

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| **Student Learning Outcomes** | **How students will practice each outcome**  | **How student achievement of each outcome will be assessed** |
| Gain detailed understanding of ecological concepts | Reading assignmentsLectureClassroom discussions | 1. Effective classroom discussion will depend on completion of reading assignments. Students must effectively relate reading assignments to lecture and classroom discussions. Students will be assessed based on their ability to use their knowledge of lecture and reading materials during classroom discussions.
2. Quizzes
3. Exams
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| Improve students’ ability to think scientifically | Reading assignmentsLectureClassroom discussions | 1. Students will be assessed based on their ability to participate in classroom discussions.
2. Quizzes
3. Exams
 |
| To expand your understanding of natural systems so that you can make informed decisions about the world you live in. | Reading assignmentsLectureClassroom discussions | 1. Students will be assessed based on their ability to participate in classroom discussions.
2. Quizzes
3. Exams
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**Home Work**

Read the assigned chapters and papers prior to the lecture.

**Grading Policy:** Grading scale will be as follows:

90-100% = A 80-89% = B 70-79% = C 60-69% = D ≤ 59% = F

 Exams (3) 40%

 Final Exam 10%

Quizzes 10%

 Laboratory 40%

 *Total* 100%

# Exams

There will be three exams and one cumulative final exam. The exam dates on the syllabus may change, but exams will be announced at least one week in advance. Exams will include materials covered during lecture, reading assignments, and class discussions.

**Final Exam**

The final exam will be cumulative, however we may change the structure of the final

**Quizzes**

There will be periodic quizzes throughout the semester**.** Quizzes may be given without advanced notice.

**Participation:** Attendance is MANDATORY. Please consult the university policy on excessive absences (see link at beginning of syllabus). You can miss three classes (i.e., 10% of lectures). After the third absence, 3% will be deducted from your final grade for EVERY missed class.

**Cell phones/texting:** Mobile phone use is not permitted in class. You will be dismissed from class if you are caught texting or if your phone rings. You will be given an absence for the day.

**Laptops/ipads/notebooks/etc:** I recommend that students bring computers to class; however, computers can ONLY be used when I indicate that it is appropriate (e.g., during statistical exercises). Notes must be taken using paper and writing utensils.

**Field Trips:** Many labs will be held in the field, and thus field trips are not optional. All field excursions will be scheduled as weather permits.

**COURSE OUTLINE/DAILY/WEEKLY SCHEDULE: (readings based on Smith and Smith 9th Ed)**

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| **Week (Dates)** | **Topic** | **Reading** |
| Week 1 (Aug 21-23) | Introduction to Ecology Climate, Biomes | Ch. 1, 2Ch. 23 |
| Week 2 (Aug 28-30) | Aquatic and Terrestrial environments Evolution and Ecology  | Ch. 3,4Ch. 5 |
| Week 4 (Sept 11-13) | Adaptation, and natural selectionLife history theory  | Ch. 10 |
| Week 5 (Sept 18-20) | Behavioral ecology and sexPlant and animal adaptations | Ch. 6,7 |
| Week 6 (Sept 25-27) | **Exam 1** Population structure and dispersion | Ch. 8 |
| Week 7 (Oct 2-4) | Population growth Intraspecific population regulation*Discuss Exam #1 results* | Ch. 9 Ch. 11 |
| Week 8 (Oct 9-11) | Population dynamics and species interaction Interspecific interactions: Competition | Ch. 12Ch. 13 |
| Week 9 (Oct 16-18) | Interspecific interactions: predation Interspecific interactions: herbivory, parasitism and mutualism | Ch. 14Ch. 15 |
| Week 10 (Oct 23-25) |  **Exam 2** Community structure | Ch. 16 |
| Week 11 (Oct 30- Nov1) | Community structure: species interactionCommunity dynamics | Ch. 17Ch.18 |
| Week 12 (Nov 6-8) | Community assembly, stability and feedbacks Fire ecology  |  |
| Week 13 (Nov 13-15) | Landscape ecology **Exam 3** | Ch. 19 |
| Week 14 (Nov 19- 23) | Fall Break  |  |
| Week 15 (Nov 27-29) | Ecosystem ecology: energeticsEcosystem ecology: nutrient cycling | Ch. 20Ch. 21 |
| Week 16 (Dec 4-6) | Restoration ecology Conservation biologyDead Week |  |
| **FINAL EXAM** | **Final Exam.****Dec 13 10:15am – 12:15pm** |  |
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