

## Biology 306: Ecological Methods

Instructor: Dr. Brian C. Barringer  
Email: [bbarring@uwsp.edu](mailto:bbarring@uwsp.edu)  
Phone: 715-346-2452  
Office: CBB 302A (inside Biology Dept main office on 3<sup>rd</sup> floor of CBB)  
Office Hours: By appointment via zoom. Just send me an email and let me know when you're available.

Meeting time: Section 1: Mon at 9am  
Section 2: Wed at 9am  
Section 4: Mon at 10:25am  
Section 5: Wed at 10:25am

Meeting location: all meetings occur in TNR 461.

Textbook: *Field & Lab Methods for General Ecology*, Brower *et al.*, 4<sup>th</sup> edition (rental).  
If you're taking the course online and not able to obtain the book, I will provide you with digital versions of the sections you need. All other course materials will be made available to you on Canvas.

**Course Objectives:** To study and apply a variety of methods used to conduct and interpret ecological studies of populations, communities, and ecosystems, and to explore fundamental concepts in ecology via hands-on activities, theoretical approaches, and discussion and analysis of course-relevant literature.

**Course modality:** Most students are taking this course in-person, by attending class once/week. A subset of students are taking the course entirely online (asynchronously). Either way, all course materials will be found on Canvas. On Canvas you will find a separate "module" associated with each week of the semester. Everything you need for a particular week will be found within its module.

For those of you taking the course online, I will use a webcam to record one of our in-person meetings on Monday of each week, then post the video on Canvas for you to watch. You will need to watch that video before 11:59pm on the Friday of that week (see note about this under Attendance, below).

**Communication and course documents:** I will frequently use email as a means for sharing information. While taking this course I expect that you check your email on a regular basis. If you need to reach me, email is probably your best bet, though you are welcome to stop by or try calling my office as well.

**Course activities and assignments:** This course includes a variety of activities/assignments designed to help you become familiar with some of the concepts and methods used in the scientific field of ecology. In addition to the assignments themselves, three quizzes and an exam will help me assess your knowledge of the information we cover. All assignments, quizzes, and the exam will occur on Canvas (to reduce the spread of SARS-CoV-2, I will not be passing out or collecting hard copies of any materials in class).

**Statistical software:** While taking this course you will need access to a statistical software application called Jamovi. The application is free and downloads and installs quickly on both Macs and PCs. If you are unable or unwilling to download and install the application on your own machine, you can use the web interface from the comfort of your favorite browser.

To download and install the application (recommended): <https://www.jamovi.org/download.html>  
To use the web interface: <https://cloud.jamovi.org/>

You will also need access to MS Excel and MS Word. All of you have access to those through UWSP.

And finally, you will need access to an application called Populus. Not unlike Jamovi, it's free and installs quickly on both Macs and PCs. If you are unable or unwilling to download and install the application on your own machine, you will need to use a campus machine or access the software through remote access.

To download and install the application (recommended): <https://cbs.umn.edu/populus/download-populus>

Note: you must have Java installed on your machine for Populus to run. I'm guessing most of you already have Java installed. If not, instructions for downloading and installing Java can be found on the Populus site.

To use remote access: <https://www.uwsp.edu/infotech/Pages/ComputerLabs/Remote-Lab.aspx>

**Attendance:** If you are taking the course in-person, we only meet once/week for a little more than an hour. On-time attendance is mandatory. You will drop one-third of an entire course grade (e.g. from a B+ to a B) for each unexcused absence. Three or more unexcused absences will result in an automatic failing grade. Excused absences are restricted to documented, verifiable, extraordinary situations (e.g., university sanctioned events, extreme illness or other emergent medical situations, deaths in the family, etc.). Timely communication with me about such absences is key. In addition, late arrivals will result in one point per minute being deducted from your participation score (see participation, below). Significantly late arrivals (i.e., > 15 minutes late) will be counted as unexcused absences. Note that if you miss a class it is your responsibility to obtain missed information/data from one of your classmates.

For those of you taking the course online, on-time participation in several Canvas discussion modules (see details below) is mandatory. You will drop one-third of an entire course grade (e.g. from a B+ to a B) for each day that you are late participating in a module. In addition, as mentioned above I will record one of our in-person meetings on Monday of each week, and post the video on Canvas for you to watch. If you do not watch the video by 11:59pm on the Friday of the corresponding week, I will treat that as an unexcused absence and reduce your course grade by one-third.

**Participation:** For those of you taking the course in-person, you are expected to be an active participant in all of our meetings and activities. I expect you to take notes, engage in discussions, ask questions, share thoughts and opinions, etc. Thirty points are allocated to participation (see grading, below). You must earn these points! Students who are always quiet and/or generally appear uninterested in our activities will not fare well in this regard.

For those of you taking the course online, you will engage in several Canvas discussion modules (see details below), wherein you will discuss papers I ask you to read. Your participation score will be determined by your level of participation in those modules.

**Canvas discussion modules:** You will read and discuss three primary literature articles while taking this course. For those of you taking the course online, you will engage with your peers and discuss the papers via Canvas discussion modules. As described above, your attendance and participation scores depend on timely and meaningful participation in those modules. For those of you taking the course in-person, we will discuss the papers in class, and you do not need to engage with the associated Canvas discussion modules.

**Late Policy:** Assignments lose 20% of their point-value for each day they are late.

**Grading:** You will earn points in this course via a combination of assignments (up to 160 points), three quizzes (up to 10 points each), an exam (up to 30 points) and participation (up to 30 points). Your final grade in this course will be based on the percentage of all possible points (250) that you earn throughout the semester. To determine your final grade, the following metric will be used:

≥	90-	87-	84-	80-	77-	74-	70-	67-	60-	≤
94%	93%	89%	86%	83%	79%	76%	73%	69%	66%	59%
A	A-	B+	B	B-	C+	C	C-	D+	D	F

**Students with Disabilities:** I will be happy to help you if you need special accommodations to succeed in this course. Please contact the Disability and Assistive Technology Center to document your needs and then contact me so that appropriate arrangements can be made. More information can be found here:

<http://www.uwsp.edu/disability/Pages/default.aspx>

**Academic Integrity:** It is your responsibility to be aware of your rights and responsibilities as a UWSP student. Please take the time to read and understand the information found here (and let me know of any questions): <https://www.uwsp.edu/dos/Documents/UWS%2014-1.pdf>

**Course Schedule:** A schedule of activities/topics follows. I reserve the right to change this schedule and/or these activities/topics/assignments with due notice as we progress through the semester.

Week	Activity	To do
1 1/25 & 1/27	No meeting.	
2 2/1 & 2/3	Course introduction. Estimating population sizes.	Estimating population sizes assignment due next week (10 pts.). Read sections 1-2 of the statistics tutorial document. Descriptive statistics pre-lab due next week (5 pts.).
3 2/8 & 2/10	Recording and describing ecological data. Descriptive statistics.	Read section 3 of the statistics tutorial document. Complete inferential statistics pre-lab before next week (5 pts.).
4 2/15 & 2/17	Inferential statistics.	Statistics assignment due next week (20 pts.). Take Quiz I (focused on Primack <i>et al.</i> ) before next week (10 pts.).
5 2/22 & 2/24	Discussion of Primack <i>et al.</i> 2004. Museum of Natural History and collections at UWSP.	
6 3/1 & 3/3	<i>Brassica</i> project – sow seeds.	<i>Brassica</i> assignment due before Week 14 (20 pts.).
7 3/8 & 3/10	Alert Distance (AD)/Flight initiation distance (FID) project.	AD/FID assignment due before Week 15 (20 pts.).
8 3/15 & 3/17	No formal meeting (work on AD/FID project).	
9 3/22 & 3/24	Spring break.	Take Quiz II (focused on Gausse 1932) before next week (10 pts.).
10 3/29 & 3/31	Discussion of Gausse 1932. Introduction to Populus software.	Populus assignment due Week 13 (20 pts.).
11 4/5 & 4/7	<i>Brassica</i> project – gather data.	
12 4/12 & 4/14	Demography and survivorship curves.	Demography/survivorship curves assignment due next week (20 pts.).
13 4/19 & 4/21	Spatial patterns in nature.	Spatial patterns assignment due next week (20 pts.).
14 4/26 & 4/28	Estimating species diversity.	Estimating species diversity assignment due next week (20 pts.). Take Quiz III before next week (10 pts.).
15 5/3 & 5/5	Discussion of Vellend 2013.	
16 5/10 & 5/12	No meeting (take exam).	Exam due 11:59pm on 5/14 (30 pts.).