

BIO 5490/7490
Population and Community Ecology
Course Syllabus
Winter Semester 2021

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LECTURES

Tuesday and Thursday 2:30 pm-3:45 pm

Lectures will be synchronous and held online using Zoom (recurring Zoom links can be found in Canvas)

OFFICE HOURS

There are no in-person office hours. Contact me if you would like to schedule a one on one Zoom meeting. General questions can be sent to me via email (or Canvas messaging). I am also usually available following lectures to answer questions.

TEXTBOOK

Required textbook: “Community Ecology” by Gary Mittelbach and Brian McGill (2019, Oxford University Press)

COURSE DESCRIPTION AND OBJECTIVES

This course will explore advanced topics in population and community ecology. Both empirical and theoretical perspectives will be examined. Topics will include: population dynamics of animals and plants, life history theory, population regulation, species interactions and the structure and dynamics of communities.

Upon successful completion of this course, students will be able to:

- 1) interpret and construct mathematical models of ecological systems and apply their predictions to novel ecological scenarios
- 2) interpret and critically evaluate data from the primary literature
- 3) synthesize findings from the primary literature and present syntheses in a written and oral format
- 4) demonstrate an understanding of the fundamental processes that influence the dynamics and structure of natural populations and communities
- 5) demonstrate an understanding of the influence of community structure on the functioning of ecosystems (including trophic dynamics, energy flow, and stability).
- 6) graduate level students should be able to synthesize findings in a sub-discipline of ecology and present areas of further research exploration in the form of an oral presentation.

COURSE PREREQUISITES

Students are required to have completed and passed an undergraduate-level ecology course (e.g., BIO 4130 or BIO 3500). Those not meeting these requirements must seek approval by the instructor for admittance into the course. Proficiency with basic calculus and algebra will be beneficial but prior courses in these topics are not required.

GRADING

Your grade will be based on points earned from four, non-cumulative midterm exams, attendance of lectures, participation in case study paper annotation using Perusall. The exam with your lowest grade will count towards fewer points:

| | |
|--|-------------|
| Exam with your highest grade | 250 |
| Exam with your 2 nd highest grade | 250 |
| Exam with your 3 rd highest grade | 250 |
| Exam with your lowest grade | 100 |
| Perusall annotations of case study papers | 100 |
| <u>Attendance</u> | <u>50</u> |
| <i>Total points possible:</i> | <i>1000</i> |

In addition to the above, those seeking graduate-level credit (BIO 7490) must also do an in-class oral presentation (see below for more details). You will not be allowed to pass the course unless a passing grade of C- (70%) or higher is attained on the oral presentation. If a passing grade is attained on the oral presentation, your grade for the course will then be based on the grading scheme provided above. Students who fail to attain a C- or higher on the oral presentation will be given an incomplete (I) for the course. An incomplete contract will be created establishing a plan for successful completion of the course and due date for the following semester.

The final letter grades for the course will be based on the total percentage accumulated at the end of the semester and assigned based on the following:

| | | | |
|----|--------------|----|--------------|
| A | 93.5 – 100% | C | 72.5 – 75.4% |
| A- | 89.5 – 93.4% | C- | 69.5 – 72.4% |
| B+ | 85.5 – 89.4% | D+ | 65.5 – 69.4% |
| B | 82.5 – 85.4% | D | 62.5 – 65.4% |
| B- | 79.5 – 82.4% | D- | 59.5 – 62.4% |
| C+ | 75.5 – 79.4% | F | ≤ 59.4% |

EXAM FORMAT

Four exams will be given during the semester (see the lecture-exam schedule for dates and topics covered). **There is no final exam.** All exams will be administered online in Canvas. Exams are open-book/open-notes and will be a mix of multiple choice and written questions. You must work alone on the exams, and you may not communicate with your peers (or anybody else) during the exam period (this is considered cheating). The exam will be available from 8am to 10pm on the scheduled exam date. You will have 2 hours to complete the exam. Once you start the exam you will have 120 minutes to complete it. Note that after 10pm you will no longer be able to access the exam (so if you start it after

8:00pm, you will not get your full 120 minutes). Multiple attempts are not permitted. Thus, once you submit the exam in Canvas, you cannot reopen it (even if you had time left in your 120 minutes).

All students are expected to take the exams on the scheduled dates. Reasonable exceptions will be granted in cases of illness, which will require notification prior to the exam (via email) and must be followed up with an original signed note from a physician on official stationery.

CASE STUDY READINGS AND ANNOTATION USING PERUSALL

You will also be required to routinely read and annotate case studies (i.e. journal articles) using the Perusall app in Canvas. You are required to write at least three original annotations and reply to at least two annotation (these may be questions/comments from me or other students). At least one original annotation must be in the Introduction AND one in the Discussion section of the paper.

Critically evaluate the paper and point out strengths or weaknesses/flaws of the paper. These observations can be included as annotations in the text. You may also include questions to me and your peers as annotations. Only questions that can be a basis of discussion will count towards your grade. You can ask questions about things that you don't understand (e.g. if a method, interpretation or analysis does not make sense or is unclear), but these will not count towards grading. What is an example of a question that could count towards your grade? For example, a paper describes a study system that did not allow the study organism to disperse into or out of the study site. A question for discussion would be "what if emigration or immigration were allowed, how would this affect the outcome of the study?"

GRADUATE-LEVEL (BIO 7490) ORAL PRESENTATION ASSIGNMENT

Students seeking graduate-level credit (BIO 7490) will be required to give an in-class oral presentation on a population or community ecology topic of the student's choice. All topics must be pre-approved by the instructor (see class schedule). Topics must fall into one or more of the following broad categories:

- Population growth, regulation
- Predator-prey interactions
- Competition
- Facilitation, mutualism
- Host-parasite, host-pathogen interactions; disease ecology
- Food web, food chain interactions
- Disturbance, fluctuating environments
- Eco-evolutionary dynamics
- Community assembly
- Causes and/or consequences of biodiversity

Presentations should be approximately 15 minutes in length and must use computer-based presentation software (e.g., PowerPoint, pdf, etc.). The presentation should provide a review and synthesis of the topic, highlighting the current state of knowledge as well as potential future areas of research. Presentations must use information obtained from the primary literature (i.e. scientific journal articles) and a list of references must be provided at the end of the presentation. Oral presentations will take place during the last week of class during the normal class time and

if needed during the scheduled final exam period. All students (undergraduate and graduate) are expected to attend all days of presentations.

As described above, obtaining a grade in the course is contingent upon passing the oral presentation with a C- (70% or higher).

Grading of the oral presentation assignment is based on the following:

| | |
|-------------------------------------|-----|
| Choice of topic by due date | 10% |
| Presentation of rough draft of talk | 40% |
| In-class oral presentation | 50% |

Rough drafts may either be submitted as a Powerpoint presentation with audio narration or can be presented in-person using a scheduled Zoom meeting. **Wednesday, 4/14** is the last day to submit rough drafts. Grading of the in-class oral presentation will be based on peer evaluations of your talk and my own assessment.

PRIVACY AND CONFIDENTIALITY RULES

The University's shift to remote teaching has created some new privacy and confidentiality concerns. Zoom recordings often include views of the inside of students' residences, which many students consider to be private. Students have the right to be confident that video, audio, and still images of class sessions will not be viewed by anyone other than those who are enrolled in the course. To preserve the integrity of the course when it is taught in future semesters, the contents of quizzes and other class materials must also be kept confidential.

For these reasons, every student enrolled in the course must agree to the following set of rules aimed at protecting privacy and confidentiality. If you feel that you need to make your own recordings of class sessions, please contact me so we can discuss your situation individually.

I agree that I will adhere to the following rules in connection with my participation in BIO 5490/7490 Population and Community Ecology [Professor: Dr. Christopher Steiner, Winter Semester 2021]:

1. I will not record the audio or video of any online class session.
2. I will not take a screenshot of any screen displayed as part of any online class session.
3. I will not share any audio, video, or still image from an online class session with anyone who is not a student enrolled in the class.
4. I will not share any material from quizzes and exams with anyone who is not a student enrolled in the class.
5. I will not share any recording of a class session made by the professor with any other person.

EXAM GRADE DISPUTES / CHALLENGE OPTION

Students will have one (1) week after the return of an exam or a written assignment to challenge a grade for any question. Failure to challenge the grade within this period indicates a willingness to accept the grade as is. The challenge should consist of a written description of why the answer is correct based on other published material that you cite. It is not an opportunity to complain.

CHEATING

Cheating is covered in detail in the Wayne State University Code of Conduct, found at <https://doso.wayne.edu/conduct>

Students found to be cheating during an exam (using a “cheat sheet” in physical or electronic form, looking at another’s paper, or allowing another to look at yours), will receive a zero for that test with no opportunity to drop or replace that score. A second episode of cheating will result in a grade of F for the course and may also result in initiation of university disciplinary action.

SPECIAL CONSIDERATIONS FOR INDIVIDUALS WITH DISABILITIES

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-202-4216 for videophone use. Once you have met with your disability specialist, I will be glad to meet with you privately during my office hours to discuss your accommodations. Student Disability Services’ mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. You can learn more about the disability office at www.studentdisability.wayne.edu.

RELIGIOUS HOLIDAY CONFLICTS

If you have a conflict with any of the scheduled class or exam times due to religious reasons, you must notify Dr. Steiner via email at least two weeks in advance of the date of conflict.

ADD/DROP POLICY

January 25 is the last day you can drop classes and get your tuition refunded. From January 26 until the last withdraw date (March 28), if you withdraw from the course you will receive a WN on your transcript if you never completed any exams; a WP if you have greater than 60% of the points possible at the time of your request on exams; or a WF if you have less than 60% of the points possible at the time of your request. No exams are dropped or replaced in this calculation. You can initiate a withdrawal request in Academica, and the system will contact me. I will respond within five business days. Failure to withdraw before the deadline will result in the student receiving the grade earned in the course. For more important dates see <https://wayne.edu/registrar/registration/calendar20-21>

UNEXPECTED UNIVERSITY CLOSURES

If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms:

1. the University Newswire (313) 577-5345 *
2. WSU Homepage (www.wayne.edu) *
3. WSU Academica portal (academica.aws.wayne.edu) *
4. WDET-FM (Public Radio 101.9)
5. by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations

Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University “Student Due Process”.