BIO 3500: ECOLOGY AND THE ENVIRONMENT
FALL SEMESTER, 2019
SYLLABUS

Instructor: Dr. Chris Steiner
Biological Sciences Building, Office #3121
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LECTURE LOCATION/TIME
150 General Lectures
Tuesday and Thursday 11:30 am – 12:45 pm

HONORS SECTION LOCATION/TIME
Tuesday 9:30am - 10:30am. The start time, meeting place and frequency of meetings may change and will be announced on Canvas and by email to participants.

OFFICE HOURS
Tuesday 2:00-3:00 pm, Thursday 2:00 pm - 3:00 pm, or by appointment via email

COURSE DESCRIPTION
Ecology is an integrative scientific discipline that examines how organisms interact with each other and with their environment. This course will introduce you to the fundamental ecological processes that control the abundance, distribution, and diversity of organisms. It will illustrate these concepts using contemporary environmental issues, emphasizing the human dimension of ecology.

COURSE LEARNING OBJECTIVES:
Students will

- gain working knowledge of the scientific method and be able to use hypothetico-deductive reasoning to formulate predictions and tests of those predictions
- develop an understanding of the influence/impact humans have on natural ecological processes.
- exercise critical thinking and interpret data from graphs and models.
- develop an understanding of contemporary environmental issues and be able to critically evaluate the scientific basis of societal and political ecological/environmental issues.
- be able to evaluate legitimate scientific data.
- be able to apply knowledge; i.e., using both basic models and fundamental ecological principles apply them to novel situations and formulate predictions regarding ecological patterns and dynamics.
- develop an understanding of basic ecological concepts including:

- how morphological and physiological traits of organisms influence their fitness, abundance and distributions in different environments
- how species' traits influence their interactions with their environments and other organisms
- how environmental factors and species interactions influence species' abundances and distributions in space and time
- how energy and matter are stored, transformed and transferred among biotic and abiotic components of ecosystems
- how biodiversity and external environmental factors influence the functioning and stability of ecosystems
- how human activities alter natural populations, biodiversity, and the functioning of ecosystems

COURSE PREREQUISITES

BIO 2600 with a grade of C-minus or above.

REQUIRED COURSE MATERIALS

1. Environment: The Science Behind the Stories (6th Edition), by Jay H. Withgott and Matthew Laposata.

The book is on reserve at the Undergraduate Library (UGL). Additional supplemental readings may be assigned for certain lectures and will be made available on Canvas. The degree to which lectures use materials directly from the textbook will vary greatly, with some lectures drawing more heavily from outside sources (such as news articles, books and primary literature). Thus, it is vital that you attend lectures and take notes in order to do well in this class.

2. iClicker remote or iClicker Reef

This course will make use of iClicker technology for in-class question/answer exercises and extra credit quizzes. You may use either iClicker remote keypads (e.g., iClicker 2 available at the University bookstore) or the iClicker Reef system which can be accessed through a mobile device or laptop (via wireless). The iClicker Reef app is available for IOS or Android phones while the online portal can be accessed at https://app.reef-education.com/#/login. Access is free for 14 days after which a subscription must be purchased. Students using the iClicker remote keypad can register their remote in Canvas. iClicker Reef users can register for the course at https://app.reef-education.com/#/login. All students must register by **Thursday, September 5**.

I try to have question/answer exercises during most lectures (though we may skip a lecture from time to time); you will earn participation points for taking part in the question/answer exercises which will count towards 5% of your grade (see Grading below). In addition to participation points, you may also periodically earn **extra credit** points from iClicker questions. You can earn up to 50 points total towards your grade from the extra credit iClicker questions. There are no make-up opportunities for missed iClicker questions/sessions. Students arriving late or who are absent from class will not be able to answer missed questions.

EXAM FORMAT AND DATES

You must bring your student ID (Onecard) to all exams. All exams are multiple choice (forms will be provided). Three midterm examinations (scheduled for **September 26, October 17, and November 7**) will be given during the lecture period. A two-hour final will be given during the scheduled final exam period (**Tuesday, December 17, 10:15 am – 12:15 pm**). The final exam will be cumulative, but the majority of questions will be drawn from lectures 18-25. All students are expected to take the exams at these times. 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 stationary. Exams will be closed book and held in class. No electronic devices of any kind (including watches) will be allowed and cell phones must be turned off. Anyone who leaves the exam room will not be allowed back in. Late-arriving students should know that admittance into the exam room will not be allowed after the first student has left the room.

GRADING

Your grade will be based on points earned from the exams and in-class participation (based on in-class iClicker exercises):

Midterm Exam 1	200
Midterm Exam 2	200
Midterm Exam 3	200
Final exam	350
Participation (iClicker questions)	50
Total points possible:	*1000*

Extra credit: iClicker extra questions are worth up to a total of 50 points towards your grade.

You will be graded based on the following scale.

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%

HONOR STUDENT REQUIREMENTS

Honors students will attend scheduled meetings in which we will discuss papers. Students will also work together on a group lab project. Successful completion of the honors section is dependent on attendance of scheduled meetings (100 attendance points) and a term paper based on the group lab project (100 paper points). Students must attend at least 60% of our scheduled meetings (60 attendance points) **AND** attain at least a 70% grade (70 points) on their term paper to pass the honors section. Failure to attain 60% on attendance will result in the student receiving an F for the course regardless of paper points. Having attained 60% on attendance, failure to attain 70% on the term paper will result in an incomplete (I) grade for the course until the written assignment is revised to an

adequate level (incompletes automatically revert to an "F" after 12 months). Due dates for the term paper will be determined during the semester and posted on Canvas.

MAKE-UP EXAM POLICY

If the student's absence from an exam is a legitimate documented emergency, then the student's score on the cumulative portion of the Final Exam may (at the discretion of the instructor) be pro-rated to cover the missed exam.

EXAM GRADE DISPUTES / CHALLENGE OPTION

Students will have one (1) week after the return of an exam 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.

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.

No electronic devices (cell phones, tablets, computers, smart watches, cameras, calculators, etc.) are to be present at an exam. Those present will be confiscated until the exam is completed, and students using such devices to cheat on an exam will receive a zero on the exam.

POSTING OF EXAM GRADES

Exam grades will be posted on Canvas by Student ID Number as soon as possible after the exam has been administered.

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. SDS telephone number is 313-577-1851 or 313-577-3365 (TTD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours or at another agreed upon time to discuss your needs. The mission of Student Disability Services' 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. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

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

September 11, 2019 is the last day you can drop classes and get your tuition refunded. From September 12 until the last withdraw date (November 10), instructor approval is required to withdraw from classes. Withdrawal requests should be submitted in Academica (select "Course Withdrawal" from the
Registration Menu under Student Resources). 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. Failure to withdraw before the deadline will result in the student receiving the grade earned in the course. See https://wayne.edu/registrar/registration/calendar19-20 for more important dates.

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 Newsline (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”.

BIO 3500, FALL SEMESTER 2019
LECTURE, READING AND EXAM SCHEDULE

DATE	LECTURE NUMBER AND TOPIC	READING
Thurs, Aug. 29	1. Introduction to ecology and the environment	Ch. 1
Tues, Sept. 3	2. Introduction continued; the physical environment	Ch. 2 (pp. 26-32)
Thurs, Sept. 5	3. The physical environment continued	
Tues, Sept. 10	4. Climate variation and global climate change	Ch. 17 (pp. 447-452), Ch. 18
Thurs, Sept. 13	5. Global climate change continued	Ch. 18
Tues, Sept. 17	6. Population ecology: growth and regulation	Ch.3 (pp. 58-68)
Thurs, Sept. 19	7. Population ecology: human population growth	Ch. 8
Tues, Sept. 24	8. Evolution and life history	Ch. 3 (pp. 48-58)
Thurs, Sept. 26	**EXAM 1 (COVERS LECTURES 1-7)**	
Tues, Oct. 1	9. Species interactions: predation and herbivory	Ch. 4 (pp. 74-78); Ch. 16 (pp. 433-438)
Thurs, Oct. 3	10. Species interactions: competition	Ch. 4 (pp. 74-78)
Tues, Oct. 8	11. Species interactions: parasitism, disease ecology, mutualism	Ch. 4 (pp. 74-78)
Thurs, Oct. 10	12. Community ecology: biodiversity, biogeography and biomes	Ch. 4 (pp. 78-98)
Tues, Oct. 15	13. Community ecology: biodiversity, biogeography and biomes continued	Ch. 12 (pp. 302-308); Ch. 15 (pp. 389-392); Ch. 16 (pp. 423-427)
Thurs, Oct. 17	**EXAM 2 (COVERS LECTURES 8-12)**	
Tues, Oct. 22	14. Community ecology: disturbance, succession	
Thurs, Oct. 24	15. Biodiversity loss, conservation, restoration	Ch. 11; Ch. 16 (pp. 438-440)
Tues, Oct. 29	16. Biodiversity loss, conservation, restoration cont'd	
Thurs, Oct. 31	17. Ecosystem ecology: production and energy flow	Ch. 5 (pp. 104-116)
Tues, Nov. 5	18. Agricultural production	Ch. 9; Ch. 10
Thurs, Nov. 7	**EXAM 3 (COVERS LECTURES 13-17)**	
Tues, Nov. 12	19. Renewable/nonrenewable resources	Ch. 19-21
Thurs, Nov. 14	20. Biogeochemical cycles and earth's resources I	Ch. 5 (pp. 117-126)
Tues, Nov. 19	21. Biogeochemical cycles and earth's resources II	
Thurs, Nov. 21	22. Air and water pollution	Ch. 17; Ch. 15 (pp. 405-411); Ch. 16 (pp. 427-433)
Tues, Nov. 26	23. Ecotoxicology and human health	Ch. 14
Thurs, Nov. 28	**THANKSGIVING HOLIDAY, NO CLASS**	
Tues, Dec. 3	24. Sustainability and management	Ch. 12 (308-326);
Thurs, Dec. 5	25. Sustainability and management continued	Ch. 13; Ch. 24
Tues, Dec. 17	**FINAL EXAM, 10:15AM-12:15PM**	