

**BIO 3500: ECOLOGY AND THE ENVIRONMENT**  
**Fall semester, 2020**  
**SYLLABUS**

**INSTRUCTOR:** *Dr. Donna Kashian*

**Office:** 3115 Biological Sciences

**Office Hours:** by appointment

**Office Phone:** 313-577-8052

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**LECTURE MEETING LOCATION/TIME:**

**Time:** Tuesday and Thursday 11:30AM - 12:45PM

**Location:** Tuesday: Synchronous-Zoom Thursday: Tuesday: Asynchronous-Zoom

<https://wayne-edu.zoom.us/j/98263602403?pwd=THNld1lMZhUzTjYnN3c0NGh2RS9uUT09>

Meeting ID: 982 6360 2403

Passcode: 2i048v

Students are required to sign into Zoom with their first name and initial of your last name.

**Flexibility Clause:** The instructor reserves the right to modify the course requirements and other related policies as circumstances may dictate, and with sufficient notification to all students. Even the professor can have an unanticipated emergency, and the university, or the community at large- may experience an emergency that requires changing the class schedule or requirements. I don't expect to invoke this clause, but if I do, you will be notified as soon as possible. Any change will also be posted to Canvas. **IF ZOOM GOES DOWN- Please check for a CANVAS announcement – I will post a Teams link within 10 min.**

**Honors:** Honors students are expected to reach out to the instructor via email within the first 10 days of class to begin planning their honors project.

**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.

## Bio 3500 Ecology and the Environment

- 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 2200 and BIO 2600 with grades of C-minus or above. If you are a biology major and have earned less than a C- in any of these classes or have not yet completed the prerequisites, you must seek pre-approval from the instructor to enroll.

### Textbook

*Environment the science behind the stories (2021)*, by Jay Withgott and Matthew Laposata. Additional supplemental readings may be assigned for certain lectures and will be made available on Blackboard.

### EXAM DATES

Three midterm examinations (scheduled for **September 22, October 20, and November 17**) will be given during the lecture period. A two and a half hour final will be given during the regularly scheduled final exam period (**Tuesday, December 22 at 10:15 am**). The final exam will be cumulative. 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 open book and during class time. Quizzes or assignments maybe randomly given in class on Tuesdays, and maybe given to only a portion of the class at a time (during the duration of the course all students will be given the same number of quizzes. The instructor may notify a select group that they MAY be selected for a quiz the lecture (a little heads up) prior to a quiz ,or quizzes maybe given with no notification.

### GRADES

Your grade will be based on points earned on your midterm exams and final exam:

Current Event Environmental Projects	75 (described below)
Quizzes/assignments (Tues. pop quizzes)	50
Midterm Exam 1	200
Midterm Exam 2	200
Midterm Exam 3	200

Final exam	275
<b>Total points possible:</b>	<b>1000</b>

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%

### **MAKEUP 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.

### **ADD/DROP POLICY:**

Add forms will not be signed after the second week of class.

Tuesday, September 15<sup>th</sup>, 2020 is the last day to drop the class with a tuition refund.

Per Wayne State University’s grading policy, the grade that will be assigned to students who do not officially withdraw from the course before the drop deadline will be an “F.” Students who drop the course after September 16<sup>th</sup> will be assigned one of the following three marks: WP (withdrew but was passing at the time), WF (withdrew but was failing at the time), or WN (withdrew and never attended class or no graded work). Nov 15<sup>th</sup> is the last day you can drop the course.

### **CHEATING POLICY:**

Cheating is covered in detail in the Wayne State University Code of Conduct, found at <http://www.doso.wayne.edu/judicial/academic-integrity.htm>.

Students found to be cheating during an exam (using a “cheat sheet”, 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. Students are expected to work independently on the take home exam and failure to do so will result in an F on that exam. 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, blackberries, ipods, computers, 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.

***In short, don’t cheat.*** It rarely helps you with your final course grade, and the consequences are simply not worth the risk. Be aware that cheating is a very personal and disrespectful insult to instructors, your TA, and your classmates, and the instructors will show no leniency in how it is handled.

**Students 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](http://www.studentdisability.wayne.edu).

To register with Student Disability Services, complete the online registration form at: [https://wayne-accommodate.symplicity.com/public\\_accommodation/](https://wayne-accommodate.symplicity.com/public_accommodation/)

**Academic disputes**, including issues not specifically resolved or covered by this syllabus, will be resolved by following the guidelines for University Student Due Process.

### HONOR STUDENT REQUIREMENTS

Honors students will develop lab exercises that may be used in future laboratory sections of BIO 4130 (Ecology). Or a project will be agreed upon between the instructor and student. Individuals must develop a written lab handout, or otherwise agreed upon project, due Dec 8, 2020 before the end of class. Successful completion of the honors section is dependent on attendance of scheduled meetings (10 points) and the written assignment (100 points). Students who receive <70 points on the written assignment will receive an incomplete (I) grade for the course until the written assignment is revised to an adequate level (incompletes automatically revert to a "F" after 12 months).

### LECTURE SCHEDULE\*

Date	Topic(s)	Reading
9/1	Class overview: Intro to ecology and environmental science	Ch. 1
9/3	Environmental Systems and the physical environment	Ch. 2
9/8	Population ecology: human Population life history	Ch. 8,13
9/10	Population ecology: Ecological Perspective	Ch 8,13
9/15	Population ecology: Ethics, Economics, and Sustainability	Ch. 6
9/17	Population ecology: Ethics, Economics, and Sustainability	Ch, 3
9/22	<b>EXAM 1</b>	
9/24	Environmental Policy	Ch. 7
9/29	<b>NO CLASS- TIME TO WORK ON GROUP PROJECT</b>	
10/1	Community Ecology: competition, predation and herbivory	Ch. 4
10/6	Species interactions: parasitism & disease ecology	Reading material in CANVAS
10/8	Ecosystem ecology: production and energy flow	Ch. 5
10/13	The Science of Climate Change and Artic Amplification & Connecting the dots: Evaluating Local Challenges and Opportunities in the Fight for Environmental Justice"	Reading material in CANVAS SPECIAL EVENT!!!
10/15	Biodiversity, biogeography disturbance, succession, Forest	Ch. 12
10/20	<b>EXAM 2</b>	
10/22	Conservation Biology	Ch 11
10/23	Biogeochemical cycles and earth's resources 1	Ch. 23
10/27	Biogeochemical cycles and earth's resources (water) 2	Ch. 15
10/29	Nonrenewable Energy: Coal, Oil, Natural Gas, and Nuclear Fuels	Ch. 19; article on clean coal
11/3	<b>NO SCHOOL- VOTE</b>	
11/5	Agricultural production	Ch 9 & 10
11/10	Renewable/nonrenewable resources	Ch. 21
11/12	Sustainability	Ch. 13, 20
11/17	<b>EXAM 3</b>	

11/19	Restoration Ecology	Reading material in CANVAS
11/24	Air and water pollution	Ch. 17, 22
11/26	Thanksgiving Break	
12/1	Pharmaceuticals in the environment	Reading material in CANVAS
12/3	Ecotoxicology and human health	Ch. 14
12/8	Global climate change	Ch. 18
12/10	Environmental Justice	Reading material in CANVAS
<b>12/22 ***** FINAL EXAM @ 10:15-12:15 P.M. *****</b>		

\* Instructor reserves the right to modify the schedule as necessary. Students will be informed of any changes to the schedule during class and via blackboard.

### UNEXPECTED UNIVERSITY CLOSURES (LOL)

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 Newline (313) 577-5345 \*
2. WSU Homepage ([www.wayne.edu](http://www.wayne.edu)) \*
3. WSU Pipeline ([www.pipeline.wayne.edu](http://www.pipeline.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”.

### **Current Event Environmental Projects: Due Nov 26<sup>th</sup>, 2020**

Students in their assigned teams (posted on blackboard) will work on their assigned topic. Each team of 5 will prepare a report that may not exceed 10 pages, including a cover page\*, table of contents\*, references\* and any figures, tables (i.e., single-spacing, 12 point font, one-inch margins). **Your grade will be based on** accuracy and completeness; overall organization, neatness, editorial accuracy; group participation (in part determined by your group evaluation). If you do not contribute substantially to the project each individual may experience a deduction in points from the final project- which would not affect the final grade for the other group members.

\*required components

Your paper will be constructed like a **literature review**. You will provide an overview of an environmental challenge approached in a very systematic way. To the best of your ability you will need to provide a well-rounded argument presenting both the Pro’s and Cons of a specific issue, and the important issues around that topic including the causes and consequences of the impact. Presenting the Pros and Cons may not be easy for all topics- but it is something that needs to be addressed. If you are unable to find an **economic, societal, or environmental** “pro” than you need to state that. The paper needs to be scientifically based and all facts must be cited and pulled from the scientific literature.

Each student will be responsible for an independent component of the project. Unless arranged with Dr. Kashian the independent components will consist of 5 of the below topics: Each student in the group will pick one unique component (1-6).

- 1) Organismal biology (can include physiological/ behavioral effects);
- 2) Population ecology
- 3) Community ecology
- 4) Ecosystem ecology
- 5) Landscape ecology or global

## 6) cultural/economic/social

For each level of biological organization, you want to approach the topic from that point of view or the effects of your specific stressor on that particular level of biological organization.

In addition, there needs to be **an overall introduction** to the topic and **a synthesis/conclusion** that should be assembled by the entire team. Students will be required to evaluate their partners at the end of the project.

**Independent components should be completed by Nov 17<sup>th</sup>, this allows the group time to assimilate specific components and assemble the introduction and synthesis/conclusions as a team.** You will be evaluated as a team but individual grades maybe adjusted based on the group evaluations and individual portions of the paper.

You are ONLY allowed to **cite/reference 3 web-sites for your ENTIRE Paper**. Points will be deducted from your final grade for each web-site reference over the allowed 2.

### **Final product will include**

- 1) Cover page (title and names of group members- indicating which component each individual was responsible for) a with table of content
- 2) Introduction
- 3) Body of text which includes the individual contributions- these must be blended together- not just cut and pasted into the paper.
- 4) Conclusion/Synthesis
- 5) References
- 6) Group member evaluations (this will exceed the 10 page limit)

### **Citing and referencing articles:**

#### **Reference section**

References should be arranged first alphabetically and then further sorted chronologically. Each reference should be listed on a separate line in the following formats:

#### **Reference to a journal publication:**

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. J. Sci. Commun. 163, 51-59.

#### **Reference to a book:**

Strunk Jr., W., White, E.B., 2000. The Elements of Style, fourth ed. Longman, New York.

#### **Reference to a chapter in an edited book:**

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), Introduction to the Electronic Age. E-Publishing Inc., New York, pp. 281-304.

#### **Reference for a web-site:**

The Internet Movie Database. IMDb.com, Inc, 2009. Web. 29 Oct. 2009. <<http://www.imdb.com/>>.

#### **Journal abbreviations source**

Journal names should be abbreviated according to the List of Title Word Abbreviations: <http://www.issn.org/services/online-services/access-to-the-ltwa/>.

**In text citations:**

*For articles with:*

One author (Smith 1990);

Two authors: (Smith and Weston 1990)

Three or more authors (Smith et al. 1990)

*All group members must fill an evaluation out for EACH member of their team. Evaluations must be affixed to the final project report. Example of Group Partner evaluations:*

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### Group Partner Evaluations

- 1) Your name: \_\_\_\_\_  
2) Group member name: \_\_\_\_\_  
3) What was the topic responsibility of this member: \_\_\_\_\_  
3) Did they provide their material by the Nov. 17<sup>th</sup> deadline? \_\_\_\_\_  
4) Please rank **THEIR** effort on the overall project:

1	2	3	4	5
Did not participate		Somewhat helpful		Very helpful

- 5) Please rank **YOUR** effort on the overall project:

1	2	3	4	5
Did not participate		Somewhat helpful		Very helpful

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_