

BIOLOGY 305 ECOLOGY

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Tentative Syllabus for Fall 2020

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COURSE OBJECTIVE: To acquaint students with the science of ecology. Our efforts will focus on the relationships/interactions between the physical and biological conditions under which species exist and function, and the factors which may influence their distribution, abundance, and evolutionary success.

LEARNING OUTCOMES: I expect that students should be able to define, apply, and synthesize selected aspects of the science of ecology that include energy dynamics, evolutionary ecology, and population and community structure that pertain to the relationships of organisms with their abiotic and biotic environments.

CLERICAL CONSTRUCTS/ATTENDANCE: Due to the current COVID-19 pandemic I am offering this class **exclusively as an asynchronous online course**. Course material will occur in modules on Canvas (though it is possible I will attach some material to an email—EMAIL IS THE PRIMARY MANNER BY WHICH I WILL CONTACT STUDENTS with updates to course material, etc.). Watch you emails for updates please. I have audio-complemented PowerPoint slides and thus you must prompt, when present, the speaker icon on the lower right space of each slide to listen to my voice/narration. NOTE: you need to first download each Canvas PowerPoint module to engage the audio recording of my voice, and further note that you need to take notes from the recordings because the slide images do not necessarily contain all course material for which you are responsible. Attendance is by default required vis-a-viz taking 2 scheduled exams on Canvas (see times for said tests below). **THE ONLY EXCUSED ABSENCES FROM A SCHEDULED EXAM TIME ARE MEDICAL EMERGENCIES EXCLUSIVELY REGARDING YOU. Illnesses/funerals ONLY associated with direct/immediate family constitute excused absences from exams. ALSO MAKE NECESSARY ARRANGEMENTS REGARDING CONFLICTS BETWEEN EXAM TIMES AND WORK SCHEDULES. Make sure you notify me via email within a reasonable time for alternative schedules.**

DO NOT COME BY MY OFFICE expecting to see me this semester/academic year: I will NOT be meeting in person with any student until it is safe to do so, that is, when medical officials sanction said safety.

TESTS AND GRADING: Electronically scored exams (primarily multiple choice and true/false format) through Canvas will cover our lecture material, handouts, and assigned readings (see below) in your textbook. There will be 1 mid-term test (about 30-50 questions each) and a final exam (again, about 30-50 questions); see times below. The second, or last exam will be comprehensive. **A curve typically is used for grading purposes**, otherwise expect 90% and above A, 80-89% a B, 70-79% a C, etc. Scores within the above ranges will be assigned “+” and “-“ grades at my discretion. There is no extra-credit. **Do not hesitate to contact me via email to get an estimate of your performance/grade on tests or for the course overall.**

MID-TERM AND FINAL EXAMS: The first test, on Thursday, 29 October, is based on lectures/handouts and Chapters 1, 3, 4 and 10 in course textbook; the last test on Thursday, 17 December is based on all material for 1st exam and lectures/handouts since the 1st test and Chapters 13, 15, and 29. **THE SECOND EXAM is comprehensive for entire semester of lectures and ALL book chapters listed above under “Lectures”. I ENCOURAGE YOU**

TO USE GOOGLE CHROME AS BROWSER VEHICLE FOR TESTS ON CANVAS. I AM STILL WORKING ON EXACT TIMES OF TESTS BUT EXPECT THE TEST TO BE AVIALABLE FOR ABOUT 2 MORNING HOURS, LIKELY ABOUT 9:30 UNTIL NOON.

MANY EXAM QUESTIONS WILL NOT TO BE WORDED IN THE EXACT FORMAT IN WHICH THE MATERIAL WAS PRESENTED. YOU MUST BE ABLE TO APPLY AND SYNTHESIZE MATERIAL. THUS MEMORIZATION (AND THE NUMBER OF HOURS DOING SUCH) WILL NOT NECESSARILY GUARANTEE A PARTICULAR LEVEL OF PERFORMANCE GIVEN YOUR ABILITIES, STUDY HABITS, ETC.

STUDENT RESPONSIBILITIES: It is your responsibility to know your rights and responsibilities: please read the following link (it is the same for all your other classes here at UWSP): <http://uwsp.edu/admin/stuaffairs/rights/rightschap14.pdf>

TEXT: Smith, R.L. 1996. Ecology and Field Biology. Fifth Edition. HarperCollins Publishers, Inc. New York, NY. Available in text rental. I also strongly believe that a dictionary comes in handy.

OFFICE HOURS: My office is Room 474 CNR. Office hours are 1345-1445 hrs Thursday only by email; I will try to be at a computer at this time, but of course you can email at other times. Note that I have scheduled, mandatory furloughs this semester and that my Wi-Fi service at home is sometimes interrupted—thus do not expect that I will be able to answer an email ‘immediately.’ **We all of course must flex reasonably with day-to-day logistics given the extraordinary circumstances that pervade all aspects of life due to the virus. Know that I sincerely appreciate your understanding and patience during these challenging times.**

COURSE TOPICS AND TEXT READINGS: In your text focus on themes and italicized and emboldened print; unless specified in lecture, you’re NOT responsible for Latin names of species nor for names of authors in the textbook. But in lecture modules, and unless told otherwise, you ARE responsible for the names of scientists I mention/cite. NOTE: text reading assignments do NOT necessarily reflect my lecture organization, its timing and/or theme of focus. Readings are primarily for self-learning; and in any technical journal articles I assign you should focus on why the paper is important (Introduction), how the authors did the research (Methods), what were major findings (Results), and what interpretations and/or applications of the findings were presented (Discussion) .

Lecture themes in Canvas Modules:

Introduction: What is Science, Ecology, and a brief review of the History of Ecology (Ch.1)

What is a species? Speciation. Evolution Ecology and Natural Selection (Ch. 3

Life history evolution: life history strategies.

Diversity of life: biomes and ecosystems (Ch. 4, 10, 13, 15)

Soil Ecology, Biogeochemical cycling

Energy and primary and secondary production

Ecosystem trophic structure, related topics including optimal foraging (Ch. 29)

Behavioral and community ecology: evolutionary stable strategies (game theory), density, distribution, competition, mutualism, biodiversity, and island biogeography

EXAM QUERY EXAMPLES:

Sexual selection theory predicts that the sex that initially invests the least in gametes will be the limiting resource for the sex that invests the most. T or F?

Zach and Falls showed that Bluegill Sunfish prefer larger prey. T or F? (Ask yourself both if these are the correct authors and if Bluegills did this).

Natural Selection can only work if there is phenotypic variation among individuals. T or F?

DDT:

- a) is highly soluble in lipids
- b) is persistent in the environment
- c) moves primarily through the atmosphere, rather than through soil or water
- d) all of the above
- e) only a and b

Fitness

- a) is not related to the relative reproductive success of an organism
- b) is correlated with adaptation
- c) is difficult to determine
- d) all of the above
- e) only b and c

The Paleozoic Era spanned 325,000 years. T or F?

Let's have some fun!