

BIOLOGY 305 ECOLOGY

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Tentative Syllabus for Fall 2018

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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.

ATTENDANCE: Attendance is required by UWSP policy—see the University Catalog. You are responsible for anything you missed as a result of non-attendance in lecture. Contact a fellow student for notes and/or assignments, etc. **THE ONLY EXCUSED ABSENCES FROM A SCHEDULED EXAM TIME ARE MEDICAL EMERGENCIES EXCLUSIVELY ABOUT YOU AND UWSP SPORT ACTIVITIES (ASSUMING THAT YOU'RE A PARTICIPANT IN THE SPORT), AND UWSP FIELD TRIPS. 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/in writing within a reasonable time for alternative schedules.**

TESTS AND GRADING: Electronically scored exams (primarily multiple choice and true/false) will cover our lecture material, handouts, and assigned readings (see below) in your textbook. There will be 2 mid-term tests (50 questions each) and a final exam (ca. 115 questions); see times below. The 2nd mid-term and final exams 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. There is no extra-credit. **Do not hesitate to contact me at any (reasonable) time to get an estimate of your performance/grade on tests or for the course overall.**

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>

COURTESY CLAUSE: You will lose **10 UNANNOUNCED** points for each episode of disruptive behavior or excessive chatting while the instructor is lecturing. Please respect your neighbor's learning and my teaching environment. And please **turn off** your computer and cell phones – “ringing” cell phones and activity with phones and other electronic gadgets during class is considered disruptive behavior. Thank you.

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. If I'm not in the office at this time please email or leave a note under my door so that I can schedule

an appointment with you. Please note that my time has to be managed carefully due to research, departmental activities, and advising. I appreciate your understanding and patience.

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, 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.

Lectures:

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

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

Life history evolution: life history strategies and population growth

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

MID-TERM AND FINAL EXAMS: The first mid-term test, on **Friday, 5 October**, is based on lectures/handouts and Chapters 1 and 3 in text; the 2nd mid-term is on **Tuesday, 13 November** and is based on all material for 1st exam and lectures/handouts since 1st test and Chapters 4, 10, and 13. THE FINAL EXAM is **comprehensive** for entire semester of lectures and ALL book chapters listed above under "Lectures"; it occurs on **Thursday, 20 December, 14:45-16:45 in CNR 170**.

MANY EXAM QUESTIONS WILL NOT TO BE WORDED IN THE FORMAT IN WHICH THE MATERIAL WAS PRESENTED IN LECTURE. 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. QUESTIONS OR COMMENTS ON A PREVIOUSLY TAKEN EXAM WILL ONLY BE ADDRESSED IN MY OFFICE.

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?

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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

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

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