

FAS6932: BIOLOGY AND ECOLOGY OF ALGAE

Instructor: Professor Edward Phlips

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Course Description: Biology and ecology of algae in aquatic environments, including evolution, classification, structure, photosynthesis, growth, reproduction, ecology in different aquatic ecosystems, and impacts (e.g. toxic algae).

Prerequisites: Undergraduate course in biology or marine biology.

Time and Place:

Lecture (Online):	All sections	20-30 minute modules placed on line
Question Session:	All sections	Submit questions or comments in the Discussion Section of the course web site

Course Objectives: Students will understand the basic concepts of algal biology and ecology and how they apply to different aquatic environments. Students will be familiar with the role algae play in critical environmental issues, such as eutrophication, human health and global climate change. Students will be familiar with some of the basic applications of algae in biotechnology, such as the production of food, chemicals and biofuels.

Course Communication: This course will take advantage of e-Learning support to post course information and to allow you day-to-day access to your grades. Please visit <http://lss.at.ufl.edu> to access the course via the e-Learning link and for information on how use the e-Learning site (Please use the help desk as your first course of action if you have any difficulties). Lectures are based on PowerPoint presentations to facilitate the use of figures and visual aids. Not all the information for the class will be on the PowerPoint slides, therefore it is your responsibility to take notes and complete reading assignments.

Participation and Attendance: Participation and attendance is expected for all lectures, question sessions, and special project presentations. Contact me as early as possible if you must legitimately miss a scheduled exam. If an emergency situation arises immediately before an exam, notify me as soon as the emergency is resolved. Make-up exams will not be given except for an excused absence with written substantiation (e.g., official University event, illness, family emergency, etc.).

Course Format and Grading: This course is offered for three (3) credits in the Spring semester. Exams will be based on material presented in the lectures and the required readings. Required readings will be provided on line for each major topical area.

Ten short quizzes will be administered during the term. The quizzes will involve five multiple choice or true/false questions. Seven minutes will be allowed for each quiz. The quizzes will be based on lecture materials. Each quiz will count for up to 2 points. Two points will be awarded for quizzes turned in with 0 to 1.5 wrong answers. One point will be awarded for exams with 2 to 2.5 wrong answers.

The course will also involve two special projects during the semester. For the first project students will be required to find a short video (i.e. < 5 minutes in '.flv' file format) or still image (jpeg format) which illustrates a concept or principle covered during the course to that date. Students will be required to write a paragraph (approximately half a page single spaced text) describing the visual image and its significance (Submitted in pdf format, titled with student name and assignment number, e.g. 'John Smith Special Project 1'). Image files should be imbedded in the pdf file. Video files can be submitted as separate flv files labeled with the students name and assignment number (e.g. 'John Smith Video Special Project 1'). The visual material with text will be posted online as a pdf file. All students in the class will be asked to grade the presentations of the other students in the class on a scale of 1-3 (1- below average, 2 - average, 3 - above average). The average grades of the students will be averaged with the grade of the instructor for a final score. Students will receive three points for submitting the project, and two additional points for an average grade 1.5 or higher.

The second special project will involve the development of a 20-25 minute voice over Power Point presentation on a special topic. A list of suggested special topics will be provided, but students are encouraged to select their own topic in cooperation with the instructor. The presentations will be placed on line for viewing by all graduate students in Week 15 of the course. All graduate students and the instructor will provide brief evaluations of the presentation by the end of Week 16 using the discussion section of the course web site.

Three exams will be administered online during the course. The exams will not be cumulative in terms of the material covered. Exam questions will emphasize lecture materials, but may also include general concepts presented in the required reading. The exams will be open for two hours, and will be open book. Exam questions will include list/explain, problem solving and short essays.

The grade point allocation is: A (93-100%), A- (90-92), B+ (86-89%), B (82-85%), B- (78-81%), C+ (74-77%), C (67-73%), C- (63-66%), D+ (59-62%), D (55-58%), D- (51-54%), and E (<50%). Additional detail on UF's grading policy is available at <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

Basis for grade:

Quizzes (10)	20%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Special project 1	5%
Special project 2	15%

Course Outline

<u>Week</u>	<u>Topical Areas, Tests and Assignments</u>
Week 1	Introduction & course description
Week 2	Origins of algae Environmental changes and evolution of algae Phylogeny of algae Systematics basics Reading assignment Quiz 1
Week 3	Algae structure & function – by division Reading assignment Quiz 2
Week 4	Algae structure & function – by division – continued Reading assignment Quiz 3
Week 5	Plankton sampling methods Benthic algae sampling methods Taxonomic methods Reading assignment Quiz 4
Week 6	Exam 1
Week 7	Photosynthesis – Structures, processes, methodologies Growth – Dynamics, physical limiting factors, methodologies Reading assignment Quiz 5
Week 8	Growth – Chemical limiting factors, methodologies Freshwater algae toxins Reading assignment Quiz 6

	First special project 1 due
Week 9	Spring break
Week 10	Marine algae toxins Other harmful effects of algae Reading assignment Quiz 7
Week 11	Exam 2
Week 12	Ecological principles – e.g. eutrophication, hydrologic factors, food webs, climatic factors Reading assignment Quiz 8
Week 13	Examples of ecosystem types Reading assignment Quiz 9
Week 14	Examples of ecosystem types - continued Quiz 10
Week 15	Special Project 2 due by Monday of Week 15
Week 16	Exam 3

Academic Honesty: As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

UF Counseling Services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling;
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling;
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling; and
4. Career Resource Center, Reitz Union, 392-1601, career development assistance

and counseling.

Accommodations for Students with Disabilities: Students requesting special assistance must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Software Use: All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.