

## **FAS4932: ALGAE BIOLOGY AND ECOLOGY**

**Instructor:** Professor Edward Phlips

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**Office Hours:** Thursday 8-10 AM

**Course Description:** The biology and ecology of aquatic algae, including evolution, classification, structure, photosynthesis, growth, and reproduction. Emphasis on the ecological role of algae in different aquatic ecosystems (e.g. open ocean, estuaries, coral reefs, rocky intertidal), their impacts (e.g. harmful algae blooms, food webs), and their applications (e.g. food, biochemical).

**Prerequisites:** BSC2010 and BSC2010L, or equivalent as determined by instructor

### **Time and Place:**

Lectures (Online): Lecture modules will be posted on the e-Learning web site for the course on Monday of each week, along with required reading and supplemental information. Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.

**Course Objectives:** After completing the course, students will:

- be able to describe the basic concepts of algal biology and ecology, and how they apply to different aquatic environments;
- be able to identify the role algae play in critical environmental issues, such as eutrophication, human health and global climate change;
- be able to describe 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, discussions, 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.).

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

**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 exams with 0-1.5 wrong answers. One point will be awarded for exams with 2-2.5 wrong answers.

The course will also involve two special projects during the semester. For each project students will be required to find a short video (i.e. < 4 minutes in '.flv' file format) or a still image (jpeg format) which illustrates a concept or principle covered during the course to that date. The student will be required to write and submit a paragraph (approximately half a page single spaced text) describing the video or image and its significance, along with three published references related to the subject. The required primary literature may be used as part of required reference material for the special project reports. 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 on the e-Learning web site. All students in the class will be asked to grade the presentations of a specified sub-set of other undergraduate students in the class on a scale of 1-3 (1- below average, 2 - average, 3 - above average). During the grading students will be asked to enter a brief comment on the presentation (e.g. strong point and/or weak point). The average grades of the students will be averaged with the grade of the instructor for a final grade. Students will receive five points for submitting the project and two additional points per project based on the average peer/instructor grade of 2 or higher. Students will get 3 points per project for participating in grading of the projects. Detailed instructions on how to submit projects and participate in grading will be provided on the e-Learning web site at the beginning of the semester.

Three exams will be administered online during the course. Each will be worth up to 20% of the grade. 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 one hour in length and will be available online Wednesday-Sunday of exam week. Exam questions may include multiple-choice, true/false, list/explain, short answers or 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%).

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Basis for grade:

Quizzes (10)	20%
Exam 1	20%
Exam 2	20%
Exam 3	20%
Special projects	14%
Participation in project grading & discussion	6%

### **Course Outline**

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

	Quiz 5
Week 8	Growth – Chemical limiting factors, methodologies Freshwater algae toxins
	<b>First Special Project due by Wednesday</b> Reading assignments Quiz 6
Week 9	Spring break
Week 10	Marine algae toxins Other harmful effects of algae
	<b>Peer Grades for Special Project 1 due</b> Reading assignments Quiz 7
<b>Week 11</b>	<b>Exam 2</b>
Week 12	Ecological principles – e.g. eutrophication, hydrologic factors, food webs, climatic factors Reading assignments Quiz 8
Week 13	Examples of ecosystem types Reading assignments Quiz 9
Week 14	Examples of ecosystem types - continued Quiz 10
Week 15	Algal applications
	<b>Second special project due by Wednesday</b>
<b>Week 16</b>	<b>Exam 3</b> <b>Peer Grades for Special Project 2 due</b>

**Online Course Evaluation Process:** Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>.

Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

**Academic Honesty:** As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*”

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

**Campus Helping Resources:** Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university’s counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

**Services for Students with Disabilities:** The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation 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

0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

**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.