TEXAS A&M UNIVERSITY

SYLLABUS

Course title and number	OCNG 654 Plankton Ecology
Term	Spring 2017
Meeting times and location	9:10-11:10 am Eller O&M Mon Rm303 / Wed Rm 208; Online webex

Course Description and Prerequisites

Course Objectives

1. To provide an overview of the taxonomic diversity of the marine phytoplankton.
2. To provide a comprehensive review of the physiology, ecology, trophic dynamics and production by the phytoplankton.

Learning Outcomes

By the end of the course, students should have the knowledge and skills to:
1. Recognize major groups of plankton and distinguish important species.
2. List defining characteristics and describe major physiological properties of the major algal phyla.
3. Describe methods used to identify and enumerate phytoplankton, measure growth rate, biomass, and production; be able to explain the advantages/limitations of these approaches.
4. Explain the role of phytoplankton in biogeochemical cycles and important ecological features of phytoplankton taxa.
5. Use the oceanographic literature to investigate an individual species/ ecological or physiological topic and present a concise report of findings to the class.

Instructor Information

Name	Dr. Lisa Campbell
Telephone number	979-845-5706
Email address	lisacampbell@tamu.edu
Office hours	M 11:15-12:15
Office location	911D Eller O&M

Textbook and/or Resource Material

Required: Graham et al. ***Algae***, 3rd edition. 2016. (eBook- only available from publisher, online)
Recommended: Tomas, C. ***Identifying Marine Phytoplankton***, Academic Press

Reading assignments will be from the scientific literature, book chapters and other reference materials. All papers will be available on the course website on eCampus, or from the TAMU library.

Grading Policies

Evaluations will be based on the following (by % of grade):

I. Final exam (30%)
II. Weekly written assignments or quizzes and laboratory participation and write-ups (40%)
III. Research paper and Presentation (30%)

Students will be required to participate in class discussions (answer weekly discussion questions, participate in laboratory exercises, and complete lab write-ups). A short research paper (topic must be approved by instructor) and presentation to the class (10-min) will also be required. The exam will cover all topics covered in lectures, reading, and laboratories.

Course grades will be based on your percentage of total points possible: A (90 - 100 %); B (80-89 %); C (70 -79 %); D (60-69 %); and F (below 60 %).

Course Topics, Calendar of Activities, Major Assignment Dates

Schedule of lectures and labs is available on the class website on eCampus.

Final exam will be **May 5th** during the scheduled final period; 8:00-10:00.

A research paper focusing on the ecology, physiology and/or taxonomy of an individual phytoplankton species, or genus (with approval of instructor) will be required; at least 3000 words –EXCLUDING list of references and figures/tables. Submit by email to instructor. A 10-min presentation of your paper to class will be required for the Phytoplankton Symposium on the last day of classes, **May 1st.**

Other Pertinent Course Information

The laboratory will meet in either Rm 208 or 911; check eCampus each week before lab.

University Rules Regarding Attendance.

The university views class attendance as an individual student responsibility. Students are expected to attend class and to complete all assignments. Attendance at lectures is strongly encouraged since both lecture and reading materials will be included on examinations. You must be present on the day and time of the examinations, presentations, and the laboratories to receive a grade. In case of emergencies, see Student Handbook.

See the following website re: approved absences and policies. http://student-rules.tamu.edu/rule07

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity

All materials generated specifically for this course, quizzes, exams, syllabi, in-class materials, review sheets and any problem sets--"handouts"-- are copyrighted. Because all handout materials are copyrighted, you do not have the right to copy any handout, unless I expressly grant permission.

You are expected to cite (acknowledge authorship) any material you quote or use in completing assignments for this class. Failure to attribute or assign proper authorship constitutes plagiarism, which is not acceptable. Please consult the Aggie Honor Code website to clarify what academic integrity means.

For additional information please visit: http://www.tamu.edu/aggiehonor

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

Reading Assignments

see eCampus

Fall 2017 OCNG654 Plankton Ecology: Phytoplankton SYLLABUS

TEXTBOOK: Graham et al. *Algae* (req.); Tomas, C. *Identifying Marine Phytoplankton* (recomm.)

2017 OCNG 654: Plankton Ecology Syllabus: Lectures, Assignment Due Dates
TEXTBOOK: Graham et al. 2016 *Algae* (required); Tomas, C. 1996 *Identifying Marine Phytoplankton* (recommended)

Date	Topic & Due Dates	Required Reading Assignments*	
Jan 18	Overview: Introduction to the algae/ Cell Biology Taxonomy/ Phylogeny/ Microscopy	Ch.1 & Ch. 5; Moestrup 2015; deClerck 2013	
Jan 23	Stamenopiles: Diatoms	Ch. 12	
Jan 25	Diatoms/ Bolidophytes	Ch. 12	
Jan 30	Lab #1 Diatoms	Lab 1	
Feb 1	Lab #1 Diatoms-continued		
Feb 6	Cyanobacteria I; **Lab Report #1 due**	Ch. 6	
Feb 8	Cyanobacteria II; Lab #2 (Rm 908 & 911)	Ch. 6	
Feb 13	Endosymbiosis; Glaucophytes; Euglenophytes; Stamenopiles (Pelagophytes, Dictyophytes, Chrysophytes, Eustigmatophytes; Raphidophytes) **Lab Report #2 due**	Ch. 7 & 8 Ch. 12.3, 12.4; Ch. 13, Ch. 14	
Feb 15	Cryptophytes; Haptophytes Lab #3: Flagellates (Rm 208)	Ch. 9 & 10	
Feb 20	Dinoflagellates; **Lab Report #3 due**	Ch. 11;	
Feb 22	Dinoflagellates/ HABs (Rm 208)	Ch. 11; Ch. 3	
Feb 27 & Mar 1	Lab #4 Diversity / Research papers		
Mar 6	re-schedule to Mar 10		
Mar 8	Chlorophytes; Prasinophytes; **Lab #4 report due**	Ch. 16	
Mar 10	[re-schedule from Mar 6] Biogeochemical cycles I: Carbon and PS	Ch. 2.1-2.2	
Mar 13-17	**SPRING BREAK**		
Mar 20	Biogeochemical cycles II: Nutrient cycles & HNLC Lab #5 Photosynthesis: Pvs.E	Ch. 2.3- 2.7	

Mar 22	Physiology & Ecology; **Lab Report #5 due**	Ch. 3; Ch. 21	
Mar 27	Physiology & Ecology	Ch.3	
Mar 29	Phytsiology & Ecology	Ch. 3; Ch. 21	
Apr 3	Mixotrophy and microzooplankton grazing	Ch.3; 21	
Apr 4&5	Field trip to Port Aransas; (D. Stoecker seminar at UTMSI)		
Apr 10	Grazing mortality, cell death	Ch. 21	
Apr 12	Climate change, ocean acidification, and algae		
Apr 17	Optics & Remote Sensing	2-22	
Apr 19	Ocean Observing; Lab #6 flow cytometry* (tbd)		
Apr 24	Biotechnology; **Lab #6 report due**	Ch. 4	
Apr 26	Current topics: parasites, cell cycle, transcriptomics		
May 1	Phytoplankton Symposium (present paper) Paper due (send by email)		
May 5	**Final Exam in Rm 303 (Galv - tbd)**	Bring only a pencil or pen	Review

REQUIRED TEXTBOOK:
Graham et al. Algae, 3rd edition, 2016
http://www.ljlmpress.com/algae.html

Recommended:
Tomas, Identifying Marine Phytoplankton, Academic Press, 1996

Literature (* = required):

Phylogeny, Taxonomy

* Baldauf, S. L. 2003. The deep roots of eukaryotes. Science 300:1703-06.

*Moestrup, O. 2015. On identification of harmful algae and the species concepts. In: MacKenzie, A. L. [Ed.] Marine and Freshwater Harmful Algae 2014. Proceedings of the 16th International Conference on Harmful. Algae Cawthron Institute, Nelson, New Zealand and the International Society for the Study of Harmful Algae (ISSHA), pp. 14-18.