

PLANKTON ECOLOGY  
OCB5930 & OCB4930 3 SEMESTER HOURS  
SYLLABUS AND COURSE OUTLINE, SPRING SEMESTER, 2018

CLASS MEETING TIMES: Tu,Th: 12:30-1:45  
PLACE: OSB 327

Instructor: Dr. Mike Stukel [mstukel@fsu.edu](mailto:mstukel@fsu.edu); room 323 OSB  
Office hours: By appointment – but my door is always open

**Recommended (but not required) text books:**

-Miller & Wheeler. **Biological Oceanography. 2<sup>nd</sup> Edition. Wiley-Blackwell.**  
-Kiorboe. **A mechanistic approach to plankton ecology. Princeton University Press**  
Please note that neither of these textbooks are required. They are simply my favorite textbooks on the topic in case you want more information than will be covered in this course. All required reading will be available online.

**Purpose/Objectives At the end of this class students:**

This class has two primary objectives:

- 1) Learn basic concepts of zooplankton ecology, including:
  - a. Pelagic biogeochemistry
  - b. Plankton diversity
  - c. Trophic ecology
  - d. Plankton methodology
  - e. Modeling plankton
- 2) Develop a hands-on/practical knowledge of the Matlab computational language:
  - a. Data analysis
  - b. Modeling in Matlab
  - c. Graphing and presentation of scientific data

In addition: Students will demonstrate the ability to:

- think critically and cogently about causal relationships with scientific reasoning.
- assess previous experimentation and published scientific results.
- critically examine and evaluate scientific observation, hypothesis or model construction,
- read and present scientific manuscripts

**Class attendance and participation are mandatory.** This class will be taught using an inverted classroom format. Prior to every Tuesday class period, students will be required to watch a recorded lecture about the week's topic. They should bring at least three questions that they have about the lecture to the class period. During Tuesday class periods the first 15 minutes will be devoted to answering questions about the lecture. The

final 60 minutes will be spent working in groups on the assignments. The second class period will (usually) be paper discussions led by students.

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Reading</b>
1	Jan. 9-11	Introduction to the pelagic	Miller & Wheeler, Chap 1
2	Jan. 16 – 18	Bioenergetics & Feeding Ecology	Jones (2000), Ikeda (2007)
3	Jan. 23 – 25	Protists	Calbet & Landry (2004), Harvey et al (2013)
4*	Jan. 30 – Feb 1	Crustaceans	Tiselius et al. (2013)/Decima et al. (2010)
5	Feb. 6 – 8	Crustaceans/Other Metazoans	Robison et al. (2005)/Atkinson et al. (2004)
6*	Feb. 13 – 15	Other Metazoans	Daskalov et al. (2007)/Condon et al. (2012)
7	Feb. 20 – 22	Sampling Zooplankton	Landry et al. (2009)/Genin et al. (2005)
8*	Feb. 27 – Mar. 1	NPZD modeling in Matlab	Franks (2002)/Sailley et al. (2015)
9	Mar. 6 – 8	Secondary Production / Stoichiometry / Trophic Dynamics	Landry & Calbet (2004)/Cruz et al. (2017)
	Mar. 13 – 15	Spring Break	
10*	Mar. 20 – 22	Structure & Function of Pelagic Ecosystems	Di Lorenzo & Ohman (2013)/Barton et al. (2013)
11	Mar. 27 – 29	Trophic Cascades / Vertical migration	Frank et al. (2005)/Hansen et al. (2016)
12*	Apr. 3 – 5	Biogeochemistry	Saba et al. (2011)/Wilson et al. (2013)
13	Apr. 10 – 12	Data analysis & synthesis	Bianchi et al. (2014)/Cripps et al. (2014)
14*	Apr. 17 – 19	Spatial Pattern in the Pelagic	Pershing et al. (2005)/Platt (1964)
15	Apr. 24 - 26	Final Project	

\*Denotes weeks that assignment will be due

\*\*Denotes week when final proposal will be due

### **Course Evaluation by Point System: Class attendance is required.**

#### **Your grade will be determined from 4 weighted components**

- Class attendance & participation (20%)
- Homework Assignments (40%, generally due Thurs every other week).
- Paper presentations (10%)
- Final Paper (30%)
- Grading scale:
 

<b>A&gt;=&gt;</b>	<b>92.5%</b> ,	<b>A-&gt;=</b>	<b>90%</b>
<b>B+ =&gt;</b>	<b>87.5%</b> ,	<b>B =&gt;</b>	<b>82.5%</b> ,
<b>B-&gt;=</b>	<b>80%</b>	<b>C+ =&gt;</b>	<b>77.5%</b> ,
<b>C =&gt;</b>	<b>72.5%</b> ,	<b>C-&gt;=</b>	<b>70%</b>
<b>D+ =&gt;</b>	<b>67.5%</b> ,	<b>D =&gt;</b>	<b>62.5%</b> ,
<b>D-&gt;=</b>	<b>60%</b>		

**Homework assignments** will be due at the beginning of the Thursday class period on every other week (see above for which week they are due). Most of the assignments will require programming in Matlab. Matlab can be used for free by students (if you do not have Matlab, please let me know). We will run tutorials in Matlab for those who need help. I encourage you to work together on the homework assignments, but make sure that you learn how to do it on your own. Remember: programming, data analysis, and modeling skills are some of the most useful things that you can take away from this course. *Policy on late and re-done homework assignments:* Late homework assignments will be docked one letter grade. If you are unhappy with your grade on a homework assignment, you can re-do it and turn it in again, but with a one letter grade decrease in

your grade (e.g. if you get a D on a homework assignment you can re-do it and turn it in again, but if you answer it perfectly the second time you will get a B, rather than an A).

**Final proposal:** The final assignment for the course will be a scientific paper. The requirements and evaluation will be different for graduate students and undergrads. For undergrads, the requirement is an 8-10 page paper (size 12-font, double spaced) with proper scientific citations, but otherwise formatting is up to the student. This paper can be on any topic related to zooplankton ecology (but topic choice must be approved by the instructor). Graduate students are expected to undertake a quantitative research project associated with their own research topics, using techniques that have been learned in the course. This project should be written up in a paper that is >8 pages long. Topic choice and approach should be approved by the instructor.

**Policy on missing class.** Everyone will have excellent reasons to miss a class on occasion. Absences will only be excused if the instructor is notified in advance (or in case of emergency). Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness. All excused absences require some form of verifiable documentation.

**Policy on final grades.** All grades are final and not subject to negotiation.

READING ASSIGNMENTS (tentative, subject to change).

Tentative reading assignments are shown in the syllabus. However, specific reading assignments will be given during the preceding lecture (and posted to Canvas).

**Reasonable Accommodation**

Students with disabilities needing academic accommodations should: 1. Register with and provide documentation to the Student Disability Resource Center (SDRC):  
2. Bring a letter to the instructor from the SDRC indicating you need academic accommodations. This should be done within the first week of class. (This syllabus and other class materials are available in alternative format upon request.)

**Academic Honor Code see <http://fda.fsu.edu/Academics/Academic-Honor-Policy>**

Students are expected to uphold the Academic Honor Code published in The Florida State University Bulletin and the Student Handbook and on line at the above web address. The Academic Honor System of Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work,  
(2) to refuse to tolerate violations of academic integrity in the University community, and  
(3) to foster a high sense of integrity and social responsibility on the part of the University community.

**University Attendance Policy:** Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize

students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

**Academic Honor Policy:** The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/Academics/Academic-Honor-Policy>)

**Americans With Disabilities Act:** Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; and (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the: Student Disability Resource Center 874 Traditions Way 108 Student Services Building Florida State University Tallahassee, FL 32306-4167 (850) 644-9566 (voice) (850) 644-8504 (TDD) [sdrc@admin.fsu.edu](mailto:sdrc@admin.fsu.edu) <http://www.disabilitycenter.fsu.edu/>

**Free Tutoring from FSU** For tutoring and writing help in any course at Florida State University, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of tutoring options - see <http://ace.fsu.edu/tutoring> or contact [tutor@fsu.edu](mailto:tutor@fsu.edu) for more information. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

#### **Syllabus Change Policy**

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.