

Environmental Biology – Fall 2018

EVSS 610

**Monday and Wednesday 3:25-4:40**

Maybank Hall 320

**Instructor:** Matthew (Matt) Rutter

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**Office hours:** 11am-noon Wednesday and by appointment

**Course Description:** Environmental biology will cover a large range of topics that are at the intersection of biology and environmental science. EVSS is a core course in the Masters of Environmental Studies program. The focus will be on examination of the primary literature, through discussion and student presentations. A broad goal of the course is to familiarize you with the scientific literature (how to find it and how to interpret it), and to expose you to current theoretical, experimental and statistical approaches to research in environmental biology. Throughout, we will be applying critical thinking and writing skills to the research and topics we review. Our “text” will be the primary literature.

**Course pre-requisites:** meet requirements for admission to the MES program or equivalent

**Instructional objectives and student learning outcomes:** The learning outcomes for this semester are

- 1) to gain an understanding of the broad scope of environmental biology from a natural science perspective
- 2) to discuss topics in recent primary and scholarly literature and initial quantitative discussions of data and their presentation
- 3) to synthesize primary literature across a diverse set of topics
- 4) through readings, presentations and discussion learn how environmental biologists do their work.

Students will develop skills in reading, evaluating and discussing scholarly literature in environmental biology. Students will also learn how to search for and synthesize scholarly literature in environmental biology, and present complex ideas in writing for audiences of their peer-professionals. We will also link scholarly topics with environmental biology in the news. Students will develop critical thinking, writing, and presentation skills. Additional goals include: students learning to facilitate discussion among other professionals in the field, engage with professionals with diverse backgrounds, actively participate in discussion, and prepare for discussion through prior development of questions and topics.

What you need to do:

- 1) Read the assigned readings for each class!
- 2) Be prepared for a lively discussion.
- 3) Lead discussions when assigned.
- 4) Take home exams. There will be two take home exams about the readings. They will be essay-style exams and should be straightforward if you have read the papers. Following the CofC honor code, you are on your honor *to work completely independently* on the take home exams.
- 4) Final paper and presentation. You will write a 10-page term paper in a topic of your choice in environmental biology. Advance some kind of argument with this paper—test a hypothesis in the literature, identify an area for future research and describe what is known and why it is critical we need to know more, etc.

**Grades will be based on the following work:**

Midterm Exam - 75 Pts.

Final Exam - 75 Pts.

Participation in Class Discussions, leading discussions, discussion leading essay, daily discussion questions, current event presentations (missing class, yet handing in the questions allows you to make up only a fraction of the points for that day) - 300 Pts.

Peer Review of Colleague's Paper - 25 Pts.

Draft Paper and Final Paper - 100 Pts.

Presentation of Final paper - 25 Pts.

Total: 600 points

Grades for Graduate Students: 90-100% A (Quality points: 4), 87-89% B+ (3.5), 80-86% B (3.0), 77-79% C+ (2.7), 70-77 C (2.0), below 70% F (0.0), XF Failure due to academic dishonesty

As is the tradition at the College of Charleston, the honor code applies in this course, as well as other components of the student handbook. Late work will be docked 5% per day. No late finals will be accepted.

**Attendance policy:** Attendance is required as the student learning objectives are a combination of readings, discussion, engagement with peers and presentations – class time is when we learn in this way. Please communicate with the professor *in advance* if class may be missed for professional MES obligations (e.g. presentation of thesis work at a scholarly conference). Students remain responsible for preparation of questions and course reading even when absent. In case of illness, please communicate with the professor prior to the start of class. Depending on circumstances, SKYPE attendance may be appropriate.

**Devices policy:** Computers are welcome in the classroom. Their use is intended for only course content. Cell phones may be out when anticipated news of emergencies (e.g. weather alerts or anticipated Cougar Alert updates). Contacted for personal emergency during class, please respectfully step out of the classroom.

**OAKS:** We will be using the new learning management tool called OAKS that you can access via your MyCharleston portal and the acorn icon. This is where you will find the readings for the week, hand in assignments (including questions, current events, essays, and term papers). This tool will also hopefully also allow us to follow up with discussion of topics outside of class, alert class members to local environmental biology events. This is also where you will find the sign up sheet, syllabus, my contact info and other important information, as well as weekly readings.

Please feel free to bring laptops to class!

## **College of Charleston General Syllabus Material**

1. **Center for Student Learning:** I encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study strategies, speaking & writing strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at <http://csl.cofc.edu> or call (843)953-5635.
2. **Center for Disability Services (<http://disabilityservices.cofc.edu/for-faculty/faqs.php>)**
  - Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.
  - The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.

### **3. College of Charleston Honor Code and Academic Integrity**

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor

determines the student's actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

**College Policy on religious holidays and dates specific to 2018-2019 academic year can be found here:**

<http://academicaffairs.cofc.edu/documents/procedures-and-practices/statement-of-accommodation.pdf>

Should these dates require accommodation for you, please request accommodation in advance of the date.

## **Components of the Course:**

**Lecture/Introduction:** When necessary, I will briefly provide a brief lecture that gives background on the topic of discussion. We may also have guest speakers depending on availability.

**Discussion:** We will discuss articles from the primary literature that I have chosen in advance. Be prepared for it to take quite a bit of time to read and understand the text, figures and tables! If everyone comes to discussion having read and thought about the paper, we can have lively discussions and a fun class!

## **On the week that you lead, you will prepare**

**TWO “slides” (one per paper) with bulleted discussion points printed – photocopied for all students and for me.** This will be a tool to aid our discussion, and note taking.

- **For each assigned paper this will include**
  - **1) bulleted list summary of the main points**
  - **2) your view of the paper**
  - **3) two questions per paper to start off in class discussion or break out group discussions**

Also, at the end of the discussion of each paper the discussion leader will aim to sum up our discussion in a few bullet points (orally or noted on the board). These can be considered the take home points. The leader will also spend a few minutes formally developing take home points with the group for the broader topic for that discussion period or week.

**Questions:** For every discussion, all students (including the presenter see above) will prepare four (4) **thoughtful** questions with associated text (2 per paper), and type them, *print them and bring them to class*. You will use them in class as points of discussion to ask the leader and to contribute to the overall discussion. ***Emailed questions are not accepted.*** If you miss class – you may make up this portion of the class, and post questions in a special folder on OAKS. However, there is no way to make up participation in discussion if class is missed (see below).

**Current Topics in Environmental Biology:** Each class meeting we will start with discussion of a story regarding environmental biology that has recently been in the news. Each student will be responsible for articles during the semester. Articles can be from the New York Times, Washington Post, Post and Courier, Science, Nature, as well as AP or Reuters as long as articles are of a reasonable length. For your 5 minute presentation at the beginning of class, you will read and send an e-version of the article to me and all your classmates (and post the link on the discussion board of OAKS). You should familiarize yourself with the topic such that you can describe what the article is about as well as answer

questions regarding the article for a few minutes. You may be asked to follow-up on questions asked during the discussion of the current event.

**Exams:** There will be two take-home exams: a midterm and a final, corresponding to discussions from the first and second halves of the course (although the final may have some cumulative aspects). Students will work independently on exams. Examples of exam questions will be furnished before the exams.

**Final Paper:** Students will write a paper that focuses on a scientific topic in Environmental Biology that is of interest to you. The audience for your paper will be “policy professionals” with basic biological knowledge who wish to learn more about the scientific background of a particular topic. Using topics associated with your thesis/internship project is encouraged, along with topics of regional interest. More details to follow. The paper will be 10 pages.

Papers will be subject to “peer review”. When drafts of the final paper are complete, each paper will be assigned a reviewer. The reviewer takes the paper for one week. Students will edit the paper carefully (including for grammar, etc.) and write a formal review. The review will summarize the paper, address quality of writing, logic of argument, will highlight both good and weak points, and summarize the message of the paper in a single sentence. The reviewer will make specific recommendations for improvements. These reviews will be returned to the writer of the paper as well as to me. I will grade the reviews for their thoroughness, thoughtfulness and professionalism.

Students should feel free to meet with me to discuss if the review is unclear. The final draft will be due two weeks later, at which point the original draft and the review will also be handed in together with the final paper. The writer will be evaluated on the quality of the paper, as well as the responses to the peer review editor’s comments (incorporating suggestions and corrections). Any major objections to the reviewer’s comments should be discussed with the reviewer and me. A formal one page written **response to reviewer’s comments** will be included with the final draft. This will describe how your final draft reflects the changes suggested by the reviewer.

We will also finish the class with presentations about your final paper topic so you can share what you have learned with the rest of the class.

Late work will be reduced 5% per day, participation for missed discussion cannot be made up. No late finals will be accepted. Please be professional during class and respect other students.

**Seminar Series of interest:**

Biology Department Seminars & Marine Biology Seminars

<http://biology.cofc.edu/departmental-seminars/index.php>

<http://gricemarinelab.cofc.edu/research/marine-science-seminar/index.php>

Environmental Biology-- Schedule

<b>Week</b>	<b>Course schedule</b>	<b>Written Work Due Dates</b>
Aug 29	See OAKS for first reading assignment— Your instructor is at a meeting!	
<b>Week 2</b>		
Aug 27	Introduction, Environmental Biology and Policy	
Aug 29	Climate Change	
<b>Week 3</b>		
Sept 3	Climate Change	
Sept 5	Biology of environmental disasters	
<b>Week 4</b>		
Sept 10	Biology of environmental disasters	
Sept 12	Urban Ecology	
<b>Week 5</b>		
Sept 17	Urban Ecology	Hand out of Mid-term exam
Sept 19	GMOs	
<b>Week 6</b>		
Sept 24	GMOs and Crop Biology	Mid term Exam Due on OAKS
Sept 26	Invasive Species	
<b>Week 7</b>		
Oct 1	Invasive Species	
Oct 3	Endangered Species/Endangered Ecosystems	
<b>Week 8</b>		
Oct 8	Endangered Species/Reserve design	
Oct 10	Fisheries	
<b>Week 9</b>		
Oct 15	Oceans	
Oct 17	Environmental Microbiology	Outline with citations of final paper due
<b>Week 10</b>		
Oct 22	Ecology and Evolution of Disease	
Oct 24	Ecology and Evolution of Disease	Draft of final paper due for peer review
<b>Week 11</b>		
Oct 29	Pollution	
Oct 31	Ecosystem services	Peer review due

<b>Week 12</b>		
Nov 5	<b>Fall Break – no class</b>	
Nov 7	Ecosystem services	Final paper due
<b>Week 13</b>		
Nov 12	Ecology in Charleston/Lowcountry	
Nov 14	Student presentations	Final Exam Handed out
<b>Week 14</b>		
Nov 19	Student presentations	
Nov 21- 25	<b>Thanksgiving break</b>	
<b>Week 15</b>		
Nov 26	Student presentations	
Nov 28	Student presentations	
<b>Week 16</b>		
Dec 3	<b>TBD</b>	Final Exam Due (OAKS) Dec 11 by 7pm