

Marine Adaptations - FAS 6154

Course description

This course will focus on the responses of species and habitats to stressors encountered in the marine environment. We will first examine the physiological responses to salinity, hypoxia, ocean acidification, thermal stress, pollutants, nitrogen stress, UV radiation, and noise. Then we will explore these physiological stressors as drivers of marine ecological processes. Examples will be drawn from a wide array of marine habitats including estuarine, coastal, polar, coral reef, benthic, rocky intertidal, marsh, and pelagic. Finally, we will discuss societal, economic, and management implications.

Credits 3

Semester offered Fall 2020

Format 100% online, all course content asynchronous on Canvas. Graduate students are welcome to join the synchronous undergraduate discussions on Tuesdays period 9 (4:05-4:55pm).

Course website <https://elearning.ufl.edu>

Course prerequisites BSC 2010 and 2011 or equivalent; courses in animal physiology and ecology are recommended

Instructor

Dr. Shirley Baker

Email: sbaker25@ufl.edu

Telephone: 352-273-3627 (office)

Office: Fisheries and Aquatic Sciences, 7922 NW 71st St. Gainesville 32653

- Please use the Canvas message/Inbox feature for fastest response
- Office hours: Available by email, phone, or Zoom; office visits available by appointment

Teaching assistant

Aaron Pilnik, PhD student

Email: apilnick@ufl.edu

Phone: 407-921-5247

- Please use the Canvas message/Inbox feature for fastest response
- Office hours: Available by email or phone

Textbook and/or readings

There is no required text for the course. Online readings will be provided for each learning topic.

Student Learning Outcomes

By the end of this course, each student will be able to:

- Describe the impacts of stressors on the physiology and ecology of marine phyla and ecosystems.
- Compare physiological mechanisms of stress adaptation in a variety of marine phyla.
- Analyze the effects of stressors and physiological responses in shaping ecological patterns observed in marine ecosystems.
- Evaluate and synthesize primary literature in the discipline.

Course logistics

This course is a virtual course. Asynchronous lectures, readings, and supporting materials will be available on Canvas. Journal Club is also asynchronous, although graduate students are welcome to join the synchronous session on Tuesdays. Canvas learning modules consisting of lecture, readings, supporting material, and a quiz are provided online for each topic. Learning modules build on previous modules so you should complete the learning modules in the order presented. Each learning module has required readings beyond the lecture. This information will be covered on quizzes. These files will be made available for you to view on your computer, save, or print. There may be references to additional (optional) readings and resources if you desire further investigation of a topic.

Technology requirements

- A computer or mobile device with high-speed internet connection.
- A headset and/or microphone and speakers; a web cam is suggested.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser. [What browser am I using?](#)

Policies and resources

Flexibility

This syllabus represents current plans and objectives for this course. As the semester progresses, changes may need to be made to accommodate timing, logistics, or to enhance learning. Such changes, communicated clearly, are not unusual and should be expected.

Technology issues

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues **MUST** be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You **MUST** e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

Contacting the instructor and/or TA

Please use the Canvas message system. Messages sent by email or posted in the Canvas discussion area may not come to our attention.

Course format

This course will consist primarily of lecture and discussion sessions. Students are expected to have read assigned materials prior to discussion.

Attendance policy

Class participation facilitates learning. Participation in asynchronous discussion is expected. Requirements for participation and make-up exams, assignments, and other work in this course are consistent with university policies. [Click here to read the university attendance policies](#)

Late assignment policy

Late materials will have 10% of the total possible points deducted for every day late.

Quiz policy

Once a quiz closes, it will NOT be reopened.

Recorded materials

Our Journal Club sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. [Click here to get started with the Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course evaluations

At approximately the mid-point of the semester, the School of Forest Resources & Conservation will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Netiquette: Communication courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. Failure to do so may result in loss of participation points and/or referral to the Dean of Students' Office.

<http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>

UF honesty policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Honor Code](#). Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Inclusive learning environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

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.

Health and wellness resources

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

University Police Department: [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,

Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

Academic resources

E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information](#).

On-Line Students Complaints: [View the Distance Learning Student Complaint Process](#).

Please check *Announcements* in Canvas on a regular basis

Assignments

For each of the following assignments, expectations will be described in Canvas and in recordings and grading rubrics provided.

VoiceThread Introduction: 3 points. Students will introduce themselves by asynchronously sharing an audio/video on *VoiceThread*, as well as watching and commenting on other students' introductions.

Quizzes: 14 @ 3 points each. Quizzes will be administered through Canvas (see schedule). Quizzes will consist of multiple choice, short answer, and short essays. Questions will be "open notes" but will require critical thinking, integration, and application of interdisciplinary concepts. Quizzes will open and close on the dates noted.

Journal Club: 12 @ 3 points each. Journal Club will take place asynchronously via "Discussions" in Canvas. The class will discuss papers from the primary literature or other media, which will be made available on Canvas during the week prior to the discussion. Students will be expected to read the materials and to actively participate in every journal club. There will be 13 Journal Club weeks. During one of the weeks, the student will be graded as a leader; that week will not double count. Further expectations will be provided.

Journal Club Leadership: 1 @ 6 points. One time during the semester, students will be expected to participate in leading the asynchronous Journal Club. A schedule of assigned leadership weeks will be posted in Canvas. Students will be assigned as one of three types of leader: *Presenter*, *Facilitator*, and *Content Expert*. Further information will be provided.

Review Article: 31 points. Students will write a review article over the course of the semester. Select a particular organism and stressor of interest to you. Review the literature on the physiological, behavioral and/or morphological adaptations of the organism to the stressor. For example: *Pisaster ochraceus* (a sea star) has a variety of adaptations to air exposure (the stressor). Primary scientific literature must be cited using APA Style; **a very limited number of web sites may be used**. You may NOT recycle a paper from another class and plagiarism will NOT be tolerated. Each assignment must be submitted to Canvas by midnight on the due date (see schedule). Further details and grading rubrics will be provided.

Article Proposal: 6 points. Students will present their idea for a topic and include a list of potential resources. Instructor and TA will provide feedback and approve the topic.

Article Draft: 9 points. Students will submit a draft of their article based on their proposal, including a brief overview of the topic, an explanation of why it is interesting and relevant, a critical discussion of the literature on the topic (not just a descriptive summary), a discussion of any conflicting information, and suggestions for future

research. Perform a final spell and grammar check. Resources must be cited and formatted correctly using APA Style.

Final Submission: 16 points. Students will submit a final review article having incorporated feedback.

Peer Feedback: 2 @ 3 points each. Students will be assigned two peer Article Drafts to provide feedback. Students will be graded on the usefulness and thoroughness of their edits and suggestions.

Lightning Talks: 1 @ 6 points. Students will present their Paper topic as a < 3 min talk on VoiceThread. Further instructions and a rubric will be provided.

Week 15 Participation: 1 @ 3 pts. Students will view graduate student Lightning Talks. All students will be expected to actively participate in interacting with their peers. Expectations and a rubric will be provided.

Evaluation of Student Learning

VoiceThread Introduction, 1 @ 3 points	3 points
Quizzes, 14 @ 3 points each	42 points
Journal Club 12 @ 3 points each	36 points
Journal Club Leadership 1 @ 6 points each	6 points
Review Paper 3 @ variable points	31 points
Peer Feedback 2 @ 3 points each	6 points
Lightning Talk 1 @ 6 points each	6 points
Week 15 Participation	3 points
TOTAL	133 points

Grading Scale

Final grades will be assigned based on the percentage of total points earned. Information on current UF grading policies for assigning grade points [link to the university grades and grading policies](#).

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%).

Schedule T = Tuesday, R = Thursday, F = Friday			
Week	Date	Topic	Assignment due
1	31 August	Introduction and expectations	
2	7 September	Effects of salinity as a stressor	T: VoiceThread Upload R: Quiz wk 1
3	14	Effects of changing salinity on ecology	T: Paper proposal T: VoiceThread Comments T: Journal Club wk 2 R: Quiz wk 2
4	21	Respiratory responses to environmental hypoxia	T: Journal Club wk 3 R: Quiz wk 3
5	28	Ecological consequences of hypoxia	T: Journal Club wk 4 R: Quiz wk 4
6	5 October	Physiological effects of ocean acidification	T: Journal Club wk 5 R: Quiz wk 5
7	12	Ecological effects of ocean acidification	T: Journal Club wk 6 R: Quiz wk 6
8	19	Physiological responses to thermal stress	T: Journal Club wk 7 R: Quiz wk 7
9	26	Effects of temperature stress on ecological processes	T: Paper draft T: Journal Club wk 8 R: Quiz wk 8
10	2 November	Chemical pollutants in the marine environment and physiological impacts	T: Journal Club wk 9 R: Peer Feedback R: Quiz wk 9

11	9	Nitrogen stress in the marine environment	T: Journal Club wk 10 R: Quiz wk 10
12	16	Physiological responses to, and ecological impacts of, UV radiation	T: Journal Club wk 11 R: Quiz wk 11
13	23	Physiological effects and ecological impacts of underwater noise	T: Journal Club wk 12 R: Quiz wk 12
14	30	Managing stressors in the marine environment	T: Final Submission T: Journal Club wk 13 R: Lightning Talk R: Quiz wk 13
15	7 December	Graduate student presentations	T: Journal Club wk 14 R: Quiz wk 14 F: Participation

*Note that this schedule may be changed due to hurricane days, needing to spend more time on a particular topic, etc. Students will be given ample notification. **Please check Announcements in Canvas on a regular basis.***