

# SC 390 – INVASIVE SPECIES: ECOLOGY, IMPACTS, AND HUMAN DIMENSIONS

FALL 2012

**Time:** Monday & Wednesday, 10:00-11:45 am

**Room:** Ansin Building, Room 203

**Instructor:** Dr. Cascade Sorte, [cascade\\_sorte@emerson.edu](mailto:cascade_sorte@emerson.edu)

**Office Hours:** Wednesday, 12-1 pm in 216 Tremont St., #916 *and by appointment*

**Course Description:** Invasive species have been identified as one of the main threats to the Earth's biodiversity, have transformed ecological and human communities, and cost the U.S. over \$100 billion per year. This course covers the history of invasions from millions of years ago to the present time, and students will learn about the ecological characteristics of successful invasive species and environments that are prone to invasion. The course also explores strategies for, and issues of, predicting, preventing, and controlling invasive species with a strong emphasis on public communications and involvement in current issues. (*4 credits, meets the General Education Scientific Perspective requirement*)

## Goals (& assessment strategies)

1. Develop an understanding of the processes and implications of species invasions (*quizzes, workshop assignments, final exam*)
2. Be able to interpret and evaluate the results and presentation of scientific research (*quizzes, workshop assignments, final exam*)
3. Communicate scientific information in a clear and engaging manner to peers and the general public (*invasive species presentation, zine, workshop assignments*)

## Class Participation

It's very important – to your individual and our group success – that everyone:

- (1) attends class (see policy below),
- (2) does the reading (keeping notes of questions and comments),
- (3) regularly contributes questions and ideas during class discussions, and
- (4) encourages and considers everyone else's questions and ideas.

## Readings

“Out of Eden: An Odyssey of Ecological Invasion” by Alan Burdick (*available in campus bookstore*)

“Moral Ground: Ethical Action for a Planet in Peril” edited by Kathleen Dean Moore (*available online at Emerson library*)

Additional readings will be posted on Canvas: [canvas.emerson.edu](http://canvas.emerson.edu)

## Grading

28%	Quizzes (8 total; 4% per 7 best scores)
33%	Workshop Assignments (12 total; 3% per 11 best scores)
15%	Invasive Species Presentation
14%	Final Exam
5%	Zines
5%	Create-An-Invader Project (2.5% each for written & oral descriptions)

## Grading Scale (*Emerson-wide*)

A = 4.0 (93-100), A- = 3.7 (90-92), B+ = 3.3 (87-89), B = 3.0 (83-86), B- = 2.7 (80-82), C+ = 2.3 (77-79), C = 2.0 (73-76), C- = 1.7 (70-72), D = 1.0 (60-69), F = 0 (<60). *Grades round up, so that 92.5+ = A.*

## **Quizzes**

Short (10 minute) quizzes will be given in class during 8 class periods (see schedule, below) and will be a mix of question formats such as true/false, fill-in-the-blank, and short essays. Quizzes will assess understanding of the readings and information discussed in class, particularly (but not only, as the concepts are designed to build on each other) from the two previous class periods. Of these 8 quizzes, the 7 best scores will count towards your grade.

## **Workshop Assignments**

Class activities (or “workshops”) will include discussions, lectures, films, guest speakers, activities, readings, and field trips. There will be 12 assignments based on the class workshops (see schedule, below). These workshop assignments will be due either in class (as written or oral responses) or after class (online *via* Canvas). Instructions and deadlines will be given in class and/or on Canvas. Of the 12 workshop assignments, the 11 best scores will count towards your grade.

## **Invasive Species Presentation**

Each invasive species has a different “story”, and by learning these stories, we can start to piece together general concepts about the process of invasion. Students will (individually or in pairs) prepare a short (10-15 minute) presentation on an invasive species. During the “100 worst” class period, an example presentation will be given and specific expectations will be discussed (the grading rubric will also be posted on Canvas). Students will also sign up for a species and presentation date at that time.

## **Final Exam**

The final exam on Wednesday, November 28 will be an assessment primarily of the students’ understanding of central scientific principles discussed during the course. Exam questions will be of similar format and difficulty as the quiz questions. The exam will be designed to take an average of 1 hour to complete. There will be a review session before the exam, and students are encouraged to email Cascade with questions to be addressed during the review.

## **Zines**

Students will work in small groups to prepare a tiny 8-page pamphlet, or “zine”, to educate a public audience about prevention or control measures for a particular invasive species of their choice. Detailed instructions and grading rubrics will be provided at the beginning of the “Zine workshop” class period and on Canvas.

## **Create-An-Invader Project**

As the culmination of our study of what makes a “successful” invasive species, students will design their own invader – and pit that invader against several challenges to colonization. A one-page create-an-invader “profile” will be due (submitted on Canvas) on the last day of class. During the final exam period, these fictional invaders will compete for the title of “Most Successful Invader” – stay tuned for more details!

## **Class Attendance Policy**

Attendance is not required or monitored *per se*; rather, each student is responsible for their participation in the course. Typically, there is a strong positive relationship between attendance, performance (grade), and enjoyment of the course. Because of this, and because the instructor can only help students learn to the degree that they are *present* and *engaged*, students are encouraged to attend class whenever possible.

All quizzes and workshop assignments must be turned in at the designated time. The course grading is set-up to accommodate 2 absences without impact on your grade because the lowest grades on 1 quiz and 1 workshop assignment will be dropped. Please contact Cascade ASAP (via email or in person

during office hours) to discuss making up work for planned absences (due to religious observance) or unexpected, documented absences (due to sickness requiring a medical visit or emergencies).

### **Emerson Attendance Policy**

*“Students are expected to attend classes regularly and promptly and are responsible for all work done in their classes while they are absent. Individual instructors determine the number of times a student may be absent or tardy before a grade is lowered. In classes where attendance is required, students are responsible for notifying the instructor in advance of unavoidable absences. Students must adhere to individual instructors' attendance policies. Attending an out-of-class activity or event for another course may not be used as an excuse to disregard a given class's attendance policy. A faculty Member may not require a student to attend specified out-of-class activities that conflict with the student's schedule for another class. In addition, Massachusetts state law requires that any student who is unable, because of religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such requirement. The student will receive an opportunity to make up the examination, study or work requirement, which may have been missed because of such absence on any particular day, provided, however, that such make-up examination or work does not create an unreasonable burden upon the College. In any case of prolonged absence due to accident or illness, the student should immediately notify both the Dean of Students and his or her instructors. Under these circumstances the College will make every effort to permit the student to complete course work”*

### **Emerson Disability Statement**

*“Emerson College is committed to providing equal access to its academic programs and social activities for all qualified students with disabilities. While upholding this commitment, we require all Emerson students to meet the high standards of achievement that are essential to the College's programs and services. To advance these dual aims, the College will provide reasonable accommodations to disabled students who request accommodations through the College's Disability Services Office (DSO), if the DSO determines that accommodations are both medically necessary and reasonable. Please note that a requested accommodation will only be approved as 'reasonable' if it does not compromise any essential requirements of a course. Students who wish to request a disability accommodation must submit their request to the DSO, and not to faculty, since only the DSO is authorized to approve or deny any requests for accommodations. College employees and student's family members cannot request accommodations on a student's behalf. Rather, students who wish to request accommodations must themselves contact the DSO since Emerson's philosophy is that its students are independent and self determined and students with disabilities—like non-disabled students—have control over their lives here at Emerson and are ultimately responsible for making their own decisions. Students who know at the start of a semester that they will need accommodations must submit their accommodation requests to the DSO within the first two weeks of the semester. If a student becomes ill or disabled during the course of a semester, or discovers after the start of a semester that he or she needs a disability accommodation, he or she is encouraged to submit his or her request to the DSO as soon as possible since the process of approving accommodations takes time, and approved accommodations will not be granted retroactively. The Associate Director for Disability Services can be reached at: 617-824-8592, dso@emerson.edu, 5th Floor 216 Tremont Street.”*

### **Emerson Plagiarism Statement**

*“It is the responsibility of all Emerson students to know and adhere to the College's policy on plagiarism, which can be found at: [http://www2.emerson.edu/academic\\_affairs/policies/Plagiarism-Policy.cfm](http://www2.emerson.edu/academic_affairs/policies/Plagiarism-Policy.cfm). If you have any question concerning the Emerson plagiarism policy or about documentation of sources in work you produce in this course, speak to your instructor.”*

**Schedule** (*subject to change*)

Date	Topic	Readings	Assignments
W, 9/5	What is an invasive species?		
M, 9/10	Film: National Geographic "Strange Days on Planet Earth: Invaders"	"Flight" & Ch. 1	
W, 9/12	The 100 worst invaders	Ch. 2 & 3	Quiz 1
M, 9/17	Writing (& reading) about invasive species	Ch. 4	WA 1
W, 9/19	Discussion with a Scientist: Brown Tree Snakes & Native Birds in Guam - Haldre Rogers (Rice Univ.) <i>via</i> Skype	Savidge 1987 Ecology	Quiz 2
M, 9/24	The scientific method - data collection ( <i>bring digital camera if you have one &amp; wear clothes for time outside</i> )	Ch. 5, 6, 7	WA 2
W, 9/26	The scientific method - data analysis & conclusions	Ch. 8 & 9	WA 3
M, 10/1	History of invasion biology	Ch. 10 - 12	Quiz 3
W, 10/3	The invasion pathway & vectors	Ch. 13 & 14	WA 4
T, 10/9	What makes a good invader?	Ch. 15 & 16	WA 5
W, 10/10	What makes a location invasible?	Ch. 17	Quiz 4
M, 10/15	Invasive species in the media		WA 6
W, 10/17	Invasions & diversity	Ch. 18 & 19	Quiz 5
M, 10/22	Discussion with a Scientist: Japanese seaweed, the cryptic invader - Matt Bracken (Northeastern Univ.)	Ch. 20 & 21	WA 7
W, 10/24	Invader impacts	Ch. 22 & 23	Quiz 6
M, 10/29	Climate change & invasions	Sorte et al. 2010 Ecology	WA 8
W, 10/31	Film: To Be Announced	Ch. 24 & "New World"	
M, 11/5	What are we (& should we be) doing about invasive species?		WA 9
W, 11/7	Zine workshop		
M, 11/12	<b>~ No Class: Veteran's Day Holiday ~</b>		
W, 11/14	Discussion with an Invasion Responder: Asian Longhorned Beetle Invasion - Jennifer Forman-Orth (MA Dept. Agricultural Resources)		Quiz 7
M, 11/19	Zine presentations		Zines due
W, 11/21	<b>~ No Class: Thanksgiving Holiday ~</b>		
M, 11/26	Scientific synthesis & review session		Quiz 8
W, 11/28	Final Exam		Final Exam
M, 12/3	Discussion with the Filmmaker: "Fear & Fishing in Lake Davis" - Jarrett Byrnes (UMass-Boston)		WA 10
W, 12/5	Ethical dilemmas		WA 11
M, 12/10	"Moral Ground"	TBA from "Moral Ground"	WA 12, Create-an-invader profile due
M, 12/17 8-10 am	Create-an-invader competition		Create-an-invader presentation

*Readings noted above are chapters from "Out of Eden" or papers to be posted on Canvas.*

*WA = Workshop Assignment.*