

Syllabus

Bio 180 – Advanced Topics in Conservation Biology
Spring, 2009 – Invasion Ecology

Instructor: Dr. Michael Reed **Office Hours:** Mon, Wed, 4:15-5, or by appointment

Class Room & Hours: Barnum 113, Mon, Wed, 3-4:15

Text: Invasion Ecology, by Lockwood, Hoopes, and Marchetti (2007)

Format

This is a seminar course, which involves a small group of students discussing and exchanging ideas based on readings of original research. There are 12 topics (chapters) in the text. Each topic will have 2 classes spent on it – 1 to discuss the chapter in the text, and 1 to discuss primary literature on the same topic.

Discussions will be lead by students. For each topic, 2 students will team up to be in charge of the discussion (= 2 classes in a row). I recommend that the teams work together to prepare for class – don't just divide up the material and hope that your material magically integrates itself in class. You and your partner should work together to plan each class –see Expectations for Discussion Leaders.

If there are more than 12 students, some topics will have 3 Leaders – if someone drops the course, one of these 3 will be shifted to partner with the abandoned Leader.

On the first day that you and your partner are Discussion Leaders, you will post 2 papers from the primary literature on the Wiki to be read for the second class you lead. The papers should be relevant to the chapter, and case studies are particularly effective. These papers should be posted by the start of the first class you lead. If you are unsure of what constitutes primary literature, please see me well before posting the papers.

For students who are not Discussion Leaders, you will write Surprise statements for both papers. You need to read the papers, and for each write a statement of 1 thing that surprised you and why you were surprised. I do not want a summary of each paper. Surprise statements should be posted on the Wiki no later than 5 p.m. the day before the class discussion so that Discussion Leaders have time to review them. The surprise must focus on the methods, results, interpretation of the results, or questions not discussed that you were expecting. This can be done in 1-3 sentences / paper. Discussion Leaders do not post surprise statements for their own papers.

Expectations for Discussion Leaders

Introduce the readings (5-10 min – NO MORE!). Your introduction should draw on the readings, but should not simply re-state what we have all read. Simply reiterating what the readings say is boring and doesn't accomplish much. Instead, your job as leader is to get a discussion going. This is hard (and I will help), but far more interesting for everyone involved. Here are some tips:

- Make sure that you have enough to say to keep things moving, but do not feel that you have to say everything that you have thought of or cover every idea in the readings. If the conversation is going well, let it. The worst thing that can happen is that no one says anything. The next worst thing is that the leader completely dominates the conversation (I can be guilty of this sin myself, so feel free to cut me off if I'm talking too much).

- In your introduction, try to synthesize the material and draw out the major points. What are the 5 things you'd tell your parents if you were going to explain this to them over dinner? The chances are good that these are the same things we should be focused on. Also, feel free to supplement the reading material with other information on the topic to broaden the discussion.
- Come with a list of questions to ask (more than you think you'll need). The more specific the questions are the better, as this makes them easier for people to respond to. Preferably, post some questions on the Wiki. Some topics might include:
 - questions about methods, interpretation of results, further depth on discussion points, implications not discussed in the reading
 - be able to interpret the figures & tables
 - think about what the next experiment/question should be
 - implications for species conservation
- Ask people what surprised them, and why (during weeks of reading the primary literature, the students will have all written Surprise statements, this should be a breeze for them). If you're not leading, think how you'd answer this question. If people complain about the readings, ask them how things could have been done better, or what needs to be done next.
- Where possible, try to relate your topic to those we have discussed in previous weeks so that the ideas covered by the class build over the course of the semester.
- Being purposefully provocative (even if you don't believe what you're saying) can often help to get people talking. If the material is appropriate, set the discussion up as a debate - tell half the class that they have to argue one side and the other half that they have to argue the opposite. This approach can force people to really think about the ideas and about their preconceptions. If you are going to do this, it is best to warn people ahead of time (though don't tell them which side they will be on).
- When you ask a question, give people lots of time to respond. A good rule is to (slowly) count to 10 in your head before moving on. This is because (a) it often takes people this long to formulate something to say and (b) the uncomfortable silence (and it can be excruciating) is often what it takes to get people talking. This sounds (and can feel) horrible, but it really works, and the discussions that result are much richer.
- If no one answers a question, and there is a simple yes/no, do you agree/disagree, type answer, then ask for a show of hands - then you can focus in on individuals and ask them to explain their response.
- Don't pick on individuals and make them comment unless you have to. But if no one says anything, then it is OK to do this. Everyone else is responsible for reading and thinking about the material too, so it should not be a surprise to them. Even though you are in charge of running things, the responsibility for maintaining a discussion lies with everyone in the room.

The hardest part is getting the conversation started. Once it's going, it will often run itself - and if it is doing this you should let it. I've been running seminars for a few years now, and I'm only just getting to where I realize that my job is to say as little as possible. If I talk the whole time, then I'm essentially lecturing ... and this is not a lecture format ... the goals are very different, they are to get people thinking on their feet and discussing ideas to help them learn the stuff for themselves. But, it is your job to make sure that we are not just subjected to silence.

PowerPoint: I don't really mind whether you use PowerPoint or not, but if you do, it should be to help maintain a conversation. If there are figures that you want to ask questions about, then putting them up on a screen can really help. Likewise, having your questions on screen for people to refer to can be useful. I will reserve a projector for each class session, but you will need to go and get it from the Biology Department office before class. If you do not have a laptop, let me know and I will bring mine. If you use a Mac to make slides, but want to use my PC in class, make sure your slides work on a PC before class.

If you have never led a discussion in a seminar course before, or feel nervous about doing so, please talk to me beforehand. It isn't as hard as it might seem, and it's always easier if you're well prepared and know what to expect.

Expectations for the rest of the class

In classes that you are not leading, make sure that you have thought about the material enough that you can help the leader out. Come with at least 2 or 3 ideas to talk about if things get too quiet. If the leader has sent out questions, actually think about them before class. And be responsible about doing the reading. If you do all this stuff, others will do the same when it's your turn to lead.

Read the material for class before you get there. Review the expectations for Presenters – it's your job to make the discussion flow, and you'll be grateful when you are a presenter and the other students help you.

Post your Surprise statements the day before class (before 5 p.m.; only for readings from the primary literature, not from the text) so Presenters can read them before class.

There is a course Wiki!

The syllabus and course materials are found there. There are also places for you to post readings for the class when you are the Discussion Leader, and for Surprise statements. There is also a place for you to post news, links, web sites, and thoughts about the topics being discussed in class. All of you have access to the Wiki.

Support on the Wiki

- Links to important journals
- Relevant books in the library
- Recent news on invasive species (updated weekly)
- YouTube links on invasive species (updated weekly)
- Advise on doing research in biology
- Job opportunities

Grading

- Leading discussions: 25% of grade
- Selection of primary literature: 10%
- Weekly participation: 45%
- Surprise statements: 20%

Schedule

Date	Who	Topic	Reading
Jan 14	Reed	Course introduction	None
21		Introduction to Invasion Ecology	Lockwood et al. Ch. 1
26			to be added by students
28		Transport Vectors and Pathways	Lockwood et al. Ch. 2
Feb 2			to be added by students
4		Trends in Numbers of Invaders	Lockwood et al. Ch. 3
9			to be added by students
11		Propagules I	Lockwood et al. Ch. 4
18	Reed	Cane Toad Movie	none
19		Propagules 2	to be added by students
23		Disturbance	Lockwood et al. Ch. 5
25			to be added by students
Mar 2		Establishment Success	Lockwood et al. Ch. 6
4			to be added by students
9		Modeling Geographic Spread	Lockwood et al. Ch. 7
11			to be added by students
23		Ecological Processes & Spread	Lockwood et al. Ch. 8
25			to be added by students
30		Ecological Impacts	Lockwood et al. Ch. 9
Apr 1			to be added by students
6		Impact Synthesis	Lockwood et al. Ch. 10
8			to be added by students
13		Evolution of Invaders	Lockwood et al. Ch. 11
15			to be added by students
22		Prediction, Risk Assessment, & Management	Lockwood et al. Ch. 12
27			to be added by students
May *?	Ellmore	Field trip to the Fells	

