

Biology 159

Natural Resources Management

Spring 2006

Tuesday and Thursday, 12:00-1:15, W. M. Keck Joint Sciences Center, Room 101
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Office Hours: After class, any time I'm here [almost always] or make an appointment
Website: (<http://www.roberts.mckenna.edu/159>) for reading assignments, schedules, etc.
[Reading list and schedule](#) [Writing conventions](#) [Suggested additional papers](#)

This course is intended to convey the principles of and current issues associated with the management of global natural resources. It is a seminar course and most of the class presentations will be made by the students based on recent papers from technical journals. Everyone is expected to read all the papers, most of which will be regular research papers with materials, methods, and experimental results. We will begin, however, with some review articles, news accounts, and overviews.

Class format: For each class, three students will make presentations on material we all will have read, followed by 10 minutes or so from me previewing the material for the next class. If the class size is 19 (the maximum), each student will make four such presentations; if it shrinks, some will make more. The material is already assigned for the first two (check the reading list link above). The third will be based on one of the papers selected for inclusion in each student's book chapter and will be selected by each student. The last presentation will be of each student's completed chapter.

Since everyone is expected to have read all the assigned materials, the role of the students making the in-class presentations is to raise interesting issues, comment on aspects of the data presentation and conclusions given, and get a discussion going in which I will also participate. The objectives are to clarify the material and to give each of you experience in oral presentation of technical materials and in leading discussions. You will have about 15 minutes, and might wish to explain why and how the research was done, whether or not the conclusions are supported by the evidence, and what it all means in the wider scheme of things. A set of figures and tables from the paper will be available for projection..

Class product: The main work product of the class will be a book, one chapter per student, based on summaries of a series of ten or so technical papers. It will have an ISBN number, will be published in limited hard copy and on the Roberts Environmental Center web site, and will be announced by press release to the Center's mailing list of over 25,000 recipients. Needless to say, these chapters require your best work and must be of publishable quality. It will be similar to the book resulting from last semester's class in advanced topics in environmental biology (Biology 165): Ecosystem Services Research . (<http://www.roberts.mckenna.edu/books/books.asp>.)

Selection of chapter topics and papers: Chapter topics (see list below) will be selected by students on a first come, first served basis. After picking a topic, each student will do a detailed literature search and select at least 15 candidate papers. The basis for selection should be:

The paper is current, published in 2004, 2005, or 2006. Suitable papers will no doubt appear in the literature during the semester and may be substituted.

The paper is experimental, however one or two review papers might be allowed if they materially contribute to the chapter.

The paper is neither so obvious that there is nothing to discuss, nor so complicated that the student will not be able to figure it out or explain it. These selection criteria are not so easily met. Consequently I will help winnow down the 15 proposed papers to 10, and possibly suggest that the student do more literature searching, or modify his/her topic.

Method of delivering the journal articles to me: If at all possible, email all papers to me in Adobe pdf format, with the pdf *renamed as the last name of the paper's senior author* instead of whatever the journal named the pdf. This is possible for essentially all of the papers available on line, though they may also appear in html with hyperlinks. I want the pdf. (It might occur to you simply to email me the link to the pdf, but since these are often tied to cookies on your own computer they often do not work when I get them. Thus, you must save the pdf to your hard drive, rename it, and then attach it in an email to me. Furthermore, you may have to send each paper individually because of college-imposed attachment size restrictions.) Initially you may be able to get only the abstract on line, so when the pdf of the whole article is not available, a pdf of the abstract will be acceptable for the initial screening of candidate papers. Ultimately, though, I need either pdf or hard copy or the whole paper.

Weekly writing assignments: Following the introductory sessions and selection of papers, each Monday morning by 8:00 am each student must have emailed me one summary of his/her technical journal articles to be graded and edited by me and returned at class on Tuesday. Each summary should be 500-700 words long—but don't stop at 700 if there still important things to explain. If you don't have 500 words to say about the particular paper use the space to show how it is related to other similar work (which will be discussed in the paper).

The style of writing should be directed toward the intelligent layperson. This is exemplified by articles about new scientific papers in the Science and Technology section of *The Economist*, the front page of The Wall Street Journal, the News & Views section of *Nature*, and the News Focus section of *Science*. (Most of the material we are covering in the first weeks is of this type, and some additional examples are marked with an asterisk in the reading list.) The summary should establish the background for the research, tell what was actually done, and comment on its possible significance, all while telling a good story and eschewing scientific jargon. In looking at examples in the above publications, you will notice that each story is introduced by a heading, often clever and punny. If you can make yours clever, by all means do so. I will allow you to fix the first two reviews you write following my edits to improve your grade. After that, if you are

still unhappy with any of your grades you can review additional papers and just keep the best ten. Every review you write is likely to have suggested edits which you should make, in addition to any other improvements you like, for the final submission.

Writing conventions: In order to give the book a sense of uniformity, you will need to follow certain [writing conventions](#).

Final writing assignment: After you have finished the ten summaries you need to make the appropriate edits, write an introduction to the topic, and write some conclusions regarding the state of the science and the course of future research. The final product is due ***one week*** prior to your in-class presentation at the end of the semester. I will format it and make it available online for the other students to read by the class before your presentation.

Final class presentation of your book chapter: You will already have presented two or more of the papers that make up your chapter. This is your chance to summarize the rest of them briefly and to comment on the state of the research and what is coming next. Most students like to use a PowerPoint presentation for this, but it is not required.

Deliverables

Weekly papers—Your weekly papers must be submitted to me by email as attached MSWord documents by 8:00 am on ten consecutive Monday mornings, beginning January 23. This timing allows me to edit them and return them in class on Tuesdays. Late summaries will be degraded 10% automatically.

Final papers—Your final paper must be submitted to me by email as an attached MSWord document *no later than* one week before you are scheduled to present it in class so that I have time to format it and post it for the class to read. Late papers will be degraded 10% automatically.

Basis for the Course Grade

No examinations.

Ten summaries of technical papers—100 points (10 points each)
(You have the option of doing more than ten summaries and having only those with the ten highest scores included in the grade—this has the added advantage of providing more material for your book chapter, plus the more writing you do, the better you will get at it. At some point it gets to be fun and this might be your opportunity to reach that point if you are not there already.)

In these summaries as well as in the final book chapters, *everything* counts. I don't want to see spelling errors, awkward construction, lack of linearity, failure to make the point clearly, incorrect matching of tenses, incorrect capitalization and abbreviation, or any of

the other problems that might arise. The summaries are short and I expect them to have been perfected before I see them. It is a good idea to form a small group to read each other's drafts, and I would strongly recommend that you use the services of one of the college writing centers until you are sure of yourself.

One final book chapter—100 points

This grade is based on the final quality of your individual summaries, the quality of your introduction/overview section, and the quality of your conclusions and prognostications about the direction for future research. I will edit it prior to inclusion in the book and the less editing I have to do to get it into respectable shape, the higher the grade.