

BIOL 4900 B – SENIOR SEMINAR, FALL 2017
Tues 12:45-1:35; Wed 5-6:50 pm, Rm. 1023

Instructor: Dr. Brad Bergstrom, office 1107 BC, 333-5770, bergstrm@valdosta.edu
Office Hours: MW 1-2:30; other times by appt.

Course Objective (from the Undergraduate Catalog): “The capstone course in biology. This course assesses students’ abilities to research independently topics in biology, assimilate the information, and disseminate the information in an organized and understandable fashion in both written and oral forms. Besides demonstrating comprehension of their topic and competence in communication skills, students take the ETS Major Field test in biology and complete the Senior Exit Questionnaire for successful course completion.”

“Pre- or Corequisite: completion of all required courses in the senior curriculum for the biology major.”

Grading:	Outline of paper with most major references (DUE OCT. 4):	+10
	Oral (MS PowerPoint) presentation	+40
	Written Paper (DUE NOV. 15)	+40
	Participation in discussion	+10
	TOTAL	100 points
	Each absence from scheduled class or required seminar*	-10
	Failure to score 140 or higher on Major Field Test	-40
	Failure to complete Exit Questionnaire	-20

*Dates to be announced via your VSU e-mail; *Special Odum Library Session Aug. 22!*

70-100 points = Satisfactory (S); 0-69 points = Unsatisfactory (U)

Topic: APPLIED ECOLOGY

1. Ecology of emerging viruses
2. Parasitic diseases (non-virus) in a warming world
3. Link between environmental contaminants and human cancer
4. Ecosystem effects of pesticide use
5. Have we killed the oceans (overfishing, pollution, acidification...)?
6. Top-down control of ecosystems, or “trophic cascades”: recent case studies
7. Island Biogeography and Metapopulation theories and the design of reserves
8. Population Viability Analysis for conserving rare species: theory and practice
9. The growing ecological role of invasive exotics
10. Theories of species diversity (esp. geographic patterns)
11. Environmental sex determination in a warming world
12. Bio-prospecting and ethno-botany
13. Earth’s biodiversity hotspots (including new discoveries)
14. Island ecology, evolution, and extinction
15. Parasitism as a force shaping communities (species assemblages)
16. Alternative energy from an ecological perspective—is there a free lunch?
17. Is human population growth the primary threat to the Biosphere? --YES
18. Is human population growth the primary threat to the Biosphere? --NO
19. Are Genetically Modified Organisms (GMO, or GE) a threat to ecosystems?

Independent Literature-research Project

Your primary task in this course will be to research thoroughly the state of the art, as reflected in the current technical literature, of one well-defined question or area of applied ecology. You will become something of an expert on this one area, enough so that you can lucidly explain to your colleagues and visitors (as well as readers of your paper) what science currently knows about this question, and what controversies or debates exist among experts in this field. Whenever possible, I would encourage you to present evidence on both sides of a divided question and to conclude which side is more persuasive to you (this will not be applicable to all topics). You should also be able to answer good questions from the audience, which may be elicited by your presentation.

Paper: prepare a typed, double-spaced throughout (including tables, figure captions, and Literature Cited) manuscript of *no fewer than* 10 pages (not counting a title page or tables or figures) examining the important theories and evidence related to the research question you've chosen. It must be printed in a 12-point font *without right-justification*. Margins should be set to 1 inch on top, bottom, and right side, and 1.25 inches on left side. Page 0 (Zero) will be a title page, page 1 will begin the Introduction. As this is not original research, you will not have "Methods" or "Results" sections, so you may be creative with section Subheadings, which may be specifically tailored to your topic. You may have "Discussion" and/or "Conclusions" as your terminal text sections, followed by "Literature Cited" (the latter is required and must end no earlier than page 10). Place each section heading or subheading in Bold Font on its own line. **DO NOT** put extra line spaces before or after any of these sections. Following Literature Cited, you may then append (in strict order, no exceptions!), Tables (1 through n), then Figures (1-n), and in some cases, Appendix (A through Z). Put a single staple through the manuscript; no binders, no plastic.

Your Lit. Cited must have **AT LEAST** 10 references, and all of these must actually be cited at least once in the text of your paper (parenthetically, by Author last name and year, nothing else, at the end of a sentence or phrase citing a conclusion of that paper). At least 7 of these references must be scientific articles from peer-reviewed biological journals. If you choose to cite any Web sources, these will be **IN ADDITION** to the 10 required books and articles. Consult the CSE (Council of Science Editors) Style Manual and other sources that will be placed on reserve in Odum Library for this course. Also, become familiar with the style and format of the journal articles you will be consulting, and try to emulate them (recognizing that there will be differences, as you are not doing original research, and you are preparing a manuscript as for review by an editorial staff, not a finished document ready for publication). More hints to come later...

Outline: an outline of your paper, with title, all subheadings and bullets of points to be addressed within each, along with complete citations (in proper Literature Cited format) of most of the major references you'll be using will be due Oct. 4.

Presentation: Toward the end of the semester, you will be assigned a half-hour time slot to present your thesis in spoken and audio-visual format to the class and any visitors. It should be prepared using PowerPoint, and should include outline-form text, organized to help you present your speech, accompanied by data in Table and/or Graph form and possibly other images (e.g. Jpegs, Quick-time movies...). You should plan to talk for 15-20 minutes and have at least 10 minutes for questions and discussion.