

BIOL 4900 A – SENIOR SEMINAR, SPRING 2021
Tues 12:45-1:35; Mon 5-6:50 pm, Rm. 1203

Instructor: Dr. Brad Bergstrom, office 1107 BC, 333-5770, bergstrm@valdosta.edu
Office Hours (phone or MS Teams): MT 3-4 W 2-4; 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.”

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| Grading: | Outline of paper with most major references (DUE MAR. 1): | +10 |
| | Oral (MS PowerPoint) presentation | +40 |
| | Written Paper (DUE Friday after your scheduled presentation) | +40 |
| | Participation in discussion | +10 |
| | TOTAL | 100 points |
| | Each absence from scheduled class or required <u>seminar</u> * | -10 |
| | Failure to score 140 or higher on Major Field Test | -40 |
| | Failure to complete Exit Questionnaire | -20 |

*The seminars (ca. 5-6) will be online lectures you must watch and evaluate; they will be announced, with links, via e-mail and on BlazeView, and a “3-2-1” Evaluation Form, and BV assignments with one-week open window for completion will be made available.

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

Topic: APPLIED ECOLOGY

1. Ecology of emerging zoonotic 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 (“trophic cascades”) vs. Bottom-up regulation of ecosystems
7. Population Viability Analysis for conserving rare species: theory and practice
8. The growing ecological role of invasive exotics
9. Theories of species diversity (esp. geographic patterns)
10. Environmental sex determination in a warming world
11. Earth’s biodiversity hotspots (including new discoveries)
12. Parasitism as a force shaping communities (species assemblages)
13. Alternative energy from an ecological perspective—is there a free lunch?
14. Is human population growth *the primary* threat to the Biosphere? (both sides)
15. 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 science, 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 me (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 but not explicitly covered in your presentation (i.e., don't tell the audience *everything* you know).

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. I will require that this be turned in both through BlazeView and in print. The paper must be printed in a 12-point font *without right-justification*. Margins should be set to 1 inch on all 4 sides. Page 0 (Zero, unnumbered) 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 halfway through page 10). Place each section heading or subheading in Bold Font on its own line. DO NOT put extra line spaces between paragraphs in 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 primary literature—i.e., scientific articles reporting original results from peer-reviewed biological journals, and not review articles. If you cite a review article ("secondary literature"), you must NOT rely on it heavily for your arguments or summary of the state of knowledge on your topic. Those should come mostly from your distillation (and unique wording or paraphrasing) of the primary literature. If you choose to cite any Web sources, these will be IN ADDITION to the 10 required books and articles. Format will follow that of the journal *Ecology* (and several other American biology journals), which is a version of the CSE (Council of Science Editors) Style Manual. Become familiar with the style and format of one or more articles in *Ecology* and try to emulate that style (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). I will send you a detailed format guide, with examples of in-text citations and a Literature Cited section showing how to format sources other than articles, as well.

Choosing your topic, and initial discussion with instructor: 1) each of you will e-mail me with your choices ranked 1, 2, 3 (from those topics on page 1) before 12 noon on Friday, Jan. 15; 2) I will make individual appointments via MS Teams to speak with you during scheduled class times during late January and early February (TBA). Try to do some preliminary research on the topic before then, so you might understand the scope and some important terms and concepts related to your chosen topic.

Outline: an outline of your paper, with title, all subheadings and nested outline 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 **March 1**. Use the nested I, II, III; A, B, C; 1, 2, 3; i, ii, iii style. I will make individual appointments via MS Teams 2-3 weeks before the due date to discuss your progress on your outlines.

Presentation: Toward the end of the semester, you will be assigned a 25-min 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...). Note, any data table or figure, or graphic, that you import from some other source **MUST** have an attribution (citation) and the bottom of the graphic or the PPT slide. In some cases, these can be done like a citation in the text of your paper, with a "Literature Cited" slide at the end. In other cases, you may give an authority, with a website URL at the bottom of the slide, without corresponding Literature Cited reference.

Your presentation must last for at least 12 minutes and not more than 16 minutes and have 5-10 minutes for questions and discussion. I will deduct points for any time your presentation lasts less than 12 minutes or more than 16. This means you must rehearse your talk several times, and time yourself. I will also deduct points if you are rushing through your presentation to get in under the 16-min limit, or dragging or repeating to stretch it out beyond the 12 min.

PLAGIARISM: there is a ZERO TOLERANCE policy toward plagiarism in both your presentation and especially in your written paper. Any instance of plagiarism will result in automatic and instant failure in this course (i.e., receiving an unsatisfactory or U). You do not get a re-do! The words, ideas, data, illustrations and other graphics produced by any person and published in any means are the intellectual property of that person, and any use of those that is not fully attributed (e.g., by proper citation in your paper) and is not presented in your own words (i.e., by paraphrasing or summarizing, not by quoting) is plagiarism and **will** result in failure!

-A sentence composed of the same words as another person (author) wrote, or *nearly* the same words (with a few changed) is plagiarism and will result in automatic failure.

-A sentence composed of the same words as another person (author) wrote with quotation marks placed around it, even if attributed by citation, will be considered plagiarism in this course and will result in automatic failure. In other words, **DO NOT QUOTE!! PARAPHRASE AND CITE!**

-Presentation of an idea, or results, or conclusions, or data, from another author or authors without citation of a published source (parenthetically, at the end of the sentence where such idea is discussed) will be considered plagiarism in this course and will result in automatic failure. You don't necessarily need a citation after each sentence, but you should not go more than 2-3 sentences paraphrasing other authors' ideas or findings without a citation. Sometimes, 2 or more citations within the parentheses at the end of a sentence may be warranted, when both studies made essentially the same conclusion.

-Repeated citation of one and only one source throughout a section (or paragraph, or certainly a page) of your paper, is also plagiarism, because you are relying on that one paper to organize your thoughts, your thesis, your analysis—you are not doing it yourself. This is especially a risk with review articles (the "secondary literature"); letting a review article (or any article) "do your work for you" will be treated the same as plagiarism in this course.

-My advice is to read through the entirety of each article (not just the Abstract!) and take handwritten notes of phrases and bullet points (NOT sentences) on note cards that summarize the key findings of that study. Then, write your paper from your note cards. NEVER find yourself composing your paper on one window, with the full text of a source open on another window!

-Finally, if you plagiarize by any of the above means, I WILL discover it, and I WILL FAIL YOU!

Senior Exit Questionnaire: this can be completed online and must be done on or before the last class day, which is Friday, April 30. You can find the questionnaire here:

https://valdosta.co1.qualtrics.com/jfe/form/SV_6xsv58vqYfZTCSH

ETS Major Field Test in Biology: Students must complete their first attempt at the Major Field Test on or before the March 4th midterm date. You will be scheduling with the VSU Testing Center (more information TBA). A minimum score of 140 is passing and the first attempt is free to the student. Students who fail to score at least 140 have the option of re-taking the test until a score of 140 is achieved; however, all subsequent attempts to take and pass the test will be at the student's expense. If the instructor has not received a report from the Testing Center of a score of at least 140 by 5:00 PM Friday, April 30, 2021, the student will receive a grade of Unsatisfactory (U) for the course, regardless of meeting other requirements. For more information on the Major Field Test in Biology please refer to the ETS website: <http://www.ets.org/mft/about/content/biology>

Special COVID-19 Statement: Students will wear a fitted facial covering of nose and mouth at all times indoors and when unable to distance outdoors (NOTE: neck gators are not effective and therefore will not meet this requirement; masks with exhaust valves also are not effective, as they vent particles into the air). This is CDC guidance and also a requirement of the University System and VSU; beyond that, it is the right thing for all of us to do to be mutually respectful of each other's health and well-being. If you should develop symptoms or come in close contact with someone who has tested positive or has COVID symptoms, contact the Student Health Center (333-5886) and/or make an appointment with the Lowndes County Public Health Service COVID testing center by calling 844-955-1499, and do not come to class until you receive a negative test and your symptoms clear (or 10 days after symptoms start if you do not get a test). This is a face-to-face course, and therefore you are required to attend class physically. Any special accommodations will require documentation from Student Affairs. VSU's Coronavirus FAQ page is <https://www.valdosta.edu/health-advisory/faq.php>. For whatever reason you might miss class, you must inform the instructor ASAP you will be (or have been) absent and receive instructions for making up work (latter is at the discretion of the instructor). But only an official notification from Student Affairs will be considered as an excused absence; visit: <https://www.valdosta.edu/administration/student-affairs/contact-us.php>

For students requesting counseling, visit: <https://www.valdosta.edu/student/student-services/counseling-center/>