BIOL 4900 – Senior Seminar **Spring Semester 2009**

Instructor: Dr. Carter
Office: BC 1105 or BC 1040
Telephone: 333-5759, ext. 5763

Schedule

Senior Seminar	Tuesday	2:00-3:50 pm	BC 2045
Science Seminar Series	Thursday	4:00-4:50 pm	Powell Hall Auditorium

Office Hours: Mon. 8:00-9:00 AM, Tues. 4:00-5:00 PM, Wed. 8:00-9:00 AM, Thurs. 3:00-4:00 PM; other times by appointment.

Use of WebCT Vista. WebCT will be used to facilitate communication between instructor and students and to disseminate various course materials and information pertaining to plagiarism and other aspects of the course. Students are expected to log onto WebCT daily to check for announcements and updates and to use WebCT Mail for all communication relating to the course.

Course Description. Pre- or Co-requisite: Completion of all required courses in the senior curriculum for the biology major. Graded "Satisfactory" or "Unsatisfactory." The capstone course in biology. Students are required to attend outside lectures chosen by the instructor. This course assesses students' ability 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 departmental Senior Exit Questionnaire for successful course completion. [0-3-**1**]

Course Objectives. The purpose of this course is to assess the student's ability to research topics in biology independently, to assimilate information, and to disseminate information logically in both written and oral form. Besides demonstrating comprehension of their topic and competence in communication skills, students must satisfactorily complete the ETS Major Field Test in biology and complete the departmental Senior Exit Questionnaire for successful completion of the course.

Course Outcomes. This course meets the following educational outcomes.
VSU General Education Outcomes 4, 7
Biology Educational Outcome 1

Major Field Test. The ETS Major Field Test is a comprehensive, standardized test designed to evaluate the student's general knowledge in the sub-disciplines of biology. The test scores will be used to evaluate the effectiveness of the department's curriculum, and VSU's scores will be compared to the national average to identify possible weak areas in our curriculum. Thus, students should take the test seriously and make every effort to excel on it. *Completion of the ETS Major Field Test with a* **score of 140 or higher** *is a course requirement, and students who fail to complete the ETS Major Field Test will receive a grade of unsatisfactory for the course.*

Each individual student is responsible for contacting the VSU Testing Office (Powell Hall-West, First Floor, Room 1120; Telephone 229-245-3878) and arranging a time to take the ETS Major Field Test in Biology. Students must complete the Major Field Test **by Friday, 06 February 2009***.* A fee is assessed to take the Major Field Test. The Biology Department will pay the fee for each student to take the test once. Students who fail to score at least 140 on the test must re-take it until a score of 140 is achieved. The student will bear the cost for any re-taking of the Major Field Test.

Science Seminar Series. Attendance and completion of an evaluation form is required for six (6) seminars in the Science Seminar Series. Normally these seminars are held Thursdays at 4:00 PM. The schedule with time, date and venue may be found at the following Internet address:

http://www.valdosta.edu/cas/scisem/. Printable evaluation forms are made available through the course page on WebCT and should be printed out in advance by the student. *In order for the student to receive credit for attending a science seminar, it is the student's responsibility to see the instructor immediately after each seminar and submit her/his signed, completed evaluation form.*

Plagiarism. Recognition of and respect for the ownership of property is one of the distinguishing features of civilization. Ideas come from individuals and are effectively owned by their originators; thus, ideas are intellectual property. In the academic sphere, we frequently deal with the ideas of others, most often in published form. As with tangible property, intellectual property is subject to ownership and protection. Moreover, publication establishes ownership of intellectual property. It is essential that we respect the ideas and writing of others and that we scrupulously cite all sources of any and all ideas that are not our own.

Random House Webster's College Dictionary (2000) defines **plagiarism** as "the unauthorized use of the language and thoughts of another author and the representation of them as one's own." There are many forms of plagiarism. Perhaps the most blatant form is copying from some other source without citing that source. Other types of plagiarism include using a paper written by another and the improper citation of references. When paraphrasing, the author of the paraphrased material must be properly cited, and, when words are taken directly from another source, their author must be properly cited and the quotation must be placed within quotation marks for short quotations or in a separate paragraph with special indentation for longer quoted passages. [See note below on limitations of length for quoted passages.] Plagiarism is theft of intellectual property, and the simplest way to avoid plagiarism is to give credit where credit is due! For your guidance, access to several websites dealing with issues of plagiarism is provided through WebCT VISTA. Also, the following statement from the Writing Tutorial Services website at Indiana University is useful.

> To avoid plagiarism, you must give credit whenever you
> - use another person's idea, opinion, or theory;
> - use any facts, statistics, graphs, drawings – any pieces of information – that are not common knowledge;
> - quote another person's actual spoken or written words; or
> - paraphrase another person's spoken or written words.
>
> http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml; Copyright 2004; last updated 27 April 2004

It is imperative that the term paper be the student's own original work. Plagiarism will not be tolerated, and any student caught plagiarizing shall receive a failing grade on the term paper and a grade of unsatisfactory in the course. Please be forewarned that various web search engines will be used to check for plagiarism. *Each student will be required to read the VSU Biology Department's* Plagiarism Policy *and to sign a form to be kept on file with the department, indicating they have read and comprehend this policy.*

Grading

Students will be evaluated and their grade determined as follows:	
Participation in discussions and asking questions	10 points
Outline of term paper with references – due by 5:00 PM, Thurs., 26 Febr.	10 points
Oral presentation	40 points
Term paper – due at time of oral presentation	40 points
Total	100 points

Additionally, the course grade will be adversely affected as follows:	
Plagiarism will result in an automatic final grade of unsatisfactory.	
Each absence from scheduled class or presentation	-10 points
Each absence from the Science Seminar Series*	-10 points
Failure to score 140 or higher on Major Field Test	-40 points
Failure to complete Senior Exit Questionnaire	-40 points

*Students are required to attend at least six seminars. Points will be deducted for each absence less than the six required. Failure to submit a signed, completed evaluation form to the instructor immediately following the seminar will constitute an absence.

Final Grade:
Satisfactory (S) ≥70 points
Unsatisfactory (U) <70 points

Outline of Term Paper. An outline of the term paper, bibliography, and photocopies of most references are due by 5:00 PM, Thurs., 26 February. The outline should include title, general sections or subheadings of the paper, and a list of references properly formatted for the Literature Cited section. The following example has four levels.

I. Introduction
  A. History of knowledge about *Azolla-Anabaena* symbiosis
  B. General nature of *Azolla-Anabaena* symbiosis
    1. Symbiosis vs. mutualism
    2. Extent of symbiosis within *Azolla*
      i. Number of species
      ii. Distribution of species
      iii. Proportion of species exhibiting symbiosis with *Anabaena*
    3. Extent of symbiosis within *Anabaena*
      i. Number of species
      ii. Distribution of species
      iii. Proportion of species exhibiting symbiosis with *Azolla*
  C. Significance of *Azolla-Anabaena* symbiosis to humans
    1. Historical
    2. Current
  D. Statement of specific points to be discussed
II. Discussion
  A. ……..

Term Paper. The term paper is due at the time of the scheduled presentation. In addition to hard copy, the term paper must be submitted as a Word file on a functional floppy disk or CD. Throughout, including the literature cited section, the term paper must be double-spaced, left-justified, and printed using 12-point Times New Roman font. Excluding the title page, each page must be numbered in the lower right corner, and margins must be one inch on all sides. Numbering of pages should begin with the first page of the Introduction. Excluding title page, tables and figures (if used) and literature cited, the body or text of the term paper must be no shorter than 10 pages and no longer 12 pages. Excessive margins (i.e., greater than one inch) and spacing will be deducted in determining whether the 10 page minimum requirement has been met.

The term paper should begin with a **Title Page** (un-numbered) that shall include the title of the paper, name of the author, course title and number, name of instructor, and the submission date. As is the case with a good story, the term paper should have a beginning (introduction), a middle (discussion), and an end (conclusion). Under the heading of **Introduction**, the body of the paper shall begin with a general introduction to the topic. The introduction should be a synthesis of the knowledge in the area of research and the principal questions that will be examined in the discussion section. Under the heading of **Discussion**, the introduction is followed by a detailed discussion of the subject containing references to specific scientific studies. The subject should be discussed in detail, with references cited where appropriate. Finally, under the heading of **Conclusion**, the body of the term paper concludes with a summary based upon the student's interpretation of the articles. Summarize the current state of knowledge on the topic, possibly suggesting additional kinds of research or analyses that might be done to explore the topic more fully or answer questions posed in the discussion section. Subheadings for each section may also be included as appropriate. The final section of the term paper is headed **Literature Cited** and *must include at least 10 published references, at least seven of which must be primary literature*, i.e., scientific articles from biological journals. Review articles are synthesized from the primary literature; however, they are not primary literature, but are more comparable with a textbook or a

term paper. All references included in the literature cited section must be cited at least once in the body of the paper. Each reference must be cited at the end of the appropriate sentence or section by author's last name and year enclosed in parentheses. If used at all, tables and figures should be numbered sequentially and placed in order (tables before figures) after the literature cited section.

Further restrictions on numbers and types of references. No more than one textbook or review article may be used or cited. Web sites and web pages shall neither be used, nor cited as sources.

Restrictions on use of direct quotations. Direct quotations are to be avoided. *No direct quotation shall exceed five (5) words in length.* If used, direct quotations must be set off in quotation marks and the author and date cited immediately after the quotation. Also, be reminded that sources of all paraphrased material and any ideas originating from others must be properly cited.

Citation of References. Citations within the body of the paper should be enclosed within brackets, and should include the author's last name and the year of publication. The following are examples: (Cronquist, 1981); (McNaughton and Wolf, 1973); (Baker, 1965; Chase *et al.*, 2000; Petřík, 2003). All references, including textbooks, must be cited where appropriate in the body of the paper and listed in alphabetical order in the **Literature Cited** section at the end of the paper in one of the following formats.

<u>For books by a single author or a group of authors:</u>

Cronquist, A. 1981. *An integrated system of classification of flowering plants*. Columbia University Press, New York. 1262 pp.

McNaughton, S. J. and L. L. Wolf. 1973. *General ecology*. Holt, Rinehart and Winston, Inc. New York. 710 pp.

Reed, C. F. 1977. *Economically important foreign weeds*. Agriculture Handbook No. 498. United States Department of Agriculture. Washington, D.C. 746 pp.

<u>For chapters in books:</u>

Baker, H. G. 1965. Characteristics and modes of origin of weeds, Pp. 147-172, in: Baker, H. G. and G. L. Stebbins (Eds.), *The genetics of colonizing species*. Academic Press, NY.

Chase, M. W., D. E. Soltis, P. S. Soltis, P. J. Rudall, M. F. Fay, W. H. Hahn, S. Sullvan, J. Joseph, M. Molvray, P. J. Kores, T. J. Givnish, K. J. Sytsma and J. C. Pires. 2000. Higher-level systematics of the monocotyledons: an assessment of current knowledge and a new classification, Pp. 3-16, in: Wilson, K. L. and D. A. Morrison (Eds.), *Monocots: Systematics and evolution*. CSIRO Publishing, Collingwood, Victoria.

<u>For articles in periodicals:</u>

Petřík, P. 2003. *Cyperus eragrostis* – a new alien species for the Czech flora and the history of its invasion of Europe. *Preslia, Praha* 75:17-28.

Simpson, D. A. and C. A. Inglis. 2001. Cyperaceae of economic, ethnobotanical, and horticultural importance: a checklist. *Kew Bulletin* 56:257-360.

Miscellaneous Instructions. Before beginning your research, become proficient with the system required by your instructor for proper citation of references. When photocopying articles or other materials, use the models provided by your instructor as guides to write the full reference citation, properly formatted, at the top of the first page of photocopied material. Errors can be readily corrected with minimal difficulty, if a good sharpened pencil is used instead of a pen.

Bear in mind that the student is expected to read and comprehend all cited materials. As each source is read and studied, notes should be taken with proper documentation, including the full reference citation. Detailed and precise citation of page numbers for each quoted or paraphrased element is especially useful and essential documentation. Note cards or larger sheets are useful to keep track of notes and documentation. If your notes include direct quotations, then set these off using quotation marks to avoid errors of plagiarism later; see restrictions on the use of direct quotations above . All sources of information should be accurately and scrupulously recorded at this stage of your research to avoid errors of plagiarism.

Read from a variety of sources, fully documenting each on note cards or sheets of paper, and develop concepts as you go. Then synthesize these into a series of coherent sentences in your own words, citing all sources of information, data, or ideas within. *Procrastinators beware!* This requires time and effort and cannot be done effectively at the last minute.

Whenever possible, use primary sources. Also, be aware that the introductory sections of most journal articles include a short review of the research topic in which earlier works (usually primary sources) are cited. Although review articles and most books are secondary sources, they can provide easy entry into the body of literature on a topic. When the author of a review or book cites data, results, or ideas from an earlier work, then it is the student's responsibility to go to the original source, read it thoroughly and critically, and cite it.

Oral Presentation. Each student will be required to make an oral presentation on his/her research topic and will be allocated a total of 30 minutes for this presentation. Oral presentations are scheduled for the last few weeks for the semester, and each student will be assigned a date and time for her/his presentation shortly after the beginning of the term. During the first 20 minutes the student will stand and discuss the topic, and the remaining 10 minutes will be reserved for questions and general discussion. PowerPoint is recommended as the medium for oral presentations. It is the student's responsibility to insure that her/his presentation can be properly shown using the computer and projection system available, which means the student is responsible for testing the system and presentation at least several hours ***before*** beginning the scheduled presentation. Students must work closely with their instructor well in advance of the presentation to prevent last minute problems. Students are urged to practice their oral presentations prior to delivering the real thing to enable them to become comfortable, confident, and proficient. As a general rule, the oral presentation should follow the same outline and rules as the term paper. In particular, plagiarism rules apply equally to oral presentations. All sources of materials, including photographs, diagrams, graphs, etc., must be appropriately and completely cited. Literature citations for oral presentations should be done in the same manner as in the term paper, and the final slide(s) should show all of the literature used and cited. Immediately upon completing the presentation, each student should submit to the instructor her/his PowerPoint presentation saved to a CD.

Seminar Theme: *Evolutionary Patterns & Reproductive Processes in Kingdom Plantae*
Research topics are to be chosen from the following list. Each topic may be chosen by only one student and must be approved by the instructor.

1. Origin of kingdom Plantae
2. Phylogenetic placement of the hornworts
3. Why sexual reproduction and why oogamy?
4. Why alternation of generations?
5. Specializations facilitating sperm transfer in bryophytes
6. Sexual reproduction in liverworts: process, patterns, and evolution
7. Sexual reproduction in hornworts: process, patterns, and evolution
8. Evolution and significance of sporophyte dominance
9. Sexual reproduction in homosporous ferns: process, patterns, and evolution
10. Evolution and significance of heterospory
11. Do *Salvinia* have seeds?
12. Evolution, diversity, nutrition and function of subterranean gametophytes
13. Phylogenetic placement of the horsetails
14. Phylogenetic placement of the whiskferns
15. Sexual reproduction in *Selaginella*: process, patterns, and evolution
16. Sexual reproduction in *Isoetes*: process, patterns, and evolution
17. Seed ferns
18. Evolution and significance of the ovule
19. Evolution and significance of pollen and pollination
20. Is the ovulate cone of pine homologous with the megastrobilus of a cycad?
21. Why is Gymnospermae no longer treated as a formal taxonomic group?
22. Are gnetophytes ancestors of angiosperms?
23. What is a flower? Function and homology
24. Phylogenetic placement of the magnoliids
25. Phylogenetic placement of the waterlilies

Checklist of Course Requirements:

___Completion of the Major Field Test in Biology with a score of 140 or above

___Completion of Senior Exit Questionnaire

___Outline with references for term paper (due 5:00 PM, Thurs., 26 February)

___Oral presentation

___Term paper

___Attendance of all regularly scheduled class meetings including all student seminar presentations

___Attendance of and submission of completed evaluation forms for *at least six (6)* seminars in the Science Seminar Series

BIOL 4900 SENIOR SEMINAR COURSE SCHEDULE
Spring Semester 2009
Section A / Instructor: Dr. Carter

WEEK 1

TUESDAY, 13 JANUARY
Introduction to Course
Review of Syllabus and Course Requirements
Review of Plagiarism Policy
THURSDAY, 15 JANUARY
No Science Seminar this week

WEEK 2

TUESDAY, 20 JANUARY
2:00–3:50PM, Library Orientation – Ms. Laura Wright, **Odum Library, Room 3270**
This session begins promptly at 2:00 PM; please be on time.
THURSDAY, 15 JANUARY
No Science Seminar this week

WEEK 3

TUESDAY, 27 JANUARY
No class scheduled
THURSDAY, 29 JANUARY
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 4

TUESDAY, 03 FEBRUARY
No class scheduled
THURSDAY, 05 FEBRUARY
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium
Deadline for completing Major Field Test (Friday, 06 February – details in Course Syllabus)

WEEK 5

TUESDAY, 10 FEBRUARY
No class scheduled
THURSDAY, 12 FEBRUARY
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 6

TUESDAY, 17 FEBRUARY
No class scheduled
THURSDAY, 19 FEBRUARY
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 7

TUESDAY, 24 FEBRUARY
No class scheduled
THURSDAY, 26 FEBRUARY
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium
Outlines due (Thurs., 26 Feb.; see course syllabus for details)

WEEK 8

TUESDAY, 03 MARCH
No class scheduled
THURSDAY, 05 MARCH
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium
Midterm (05 March) – last day to withdraw without penalty

WEEK 9

TUESDAY, 10 MARCH
No class scheduled
THURSDAY, 12 MARCH
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

SPRING BREAK WEEK: 16-20 March

WEEK 10

TUESDAY, 24 MARCH
No class scheduled
THURSDAY, 26 MARCH
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 11

TUESDAY, 31 MARCH
Student seminar presentations
2:00 – 2:30 PM - TBA
2:30 – 3:00 PM - TBA
3:00 – 3:30 PM - TBA
3:30 – 4:00 PM - TBA
THURSDAY, 02 APRIL
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 12

TUESDAY, 07 APRIL
Student seminar presentations
2:00 – 2:30 PM - TBA
2:30 – 3:00 PM - TBA
3:00 – 3:30 PM - TBA
3:30 – 4:00 PM - TBA
THURSDAY, 09 APRIL
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 13

TUESDAY, 14 APRIL
Student seminar presentations
2:00 – 2:30 PM - TBA
2:30 – 3:00 PM - TBA
3:00 – 3:30 PM - TBA
3:30 – 4:00 PM - TBA
THURSDAY, 16 APRIL
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 14

TUESDAY, 21 APRIL
Student seminar presentations
2:00 – 2:30 PM - TBA
2:30 – 3:00 PM - TBA
3:00 – 3:30 PM - TBA
3:30 – 4:00 PM - TBA
THURSDAY, 23 APRIL
*4:00–5:00 PM, Science Seminar Series, Powell Hall Auditorium

WEEK 15

TUESDAY, 28 April
Student seminar presentations
2:00 – 2:30 PM - TBA
2:30 – 3:00 PM - TBA
3:00 – 3:30 PM - TBA
3:30 – 4:00 PM - TBA
THURSDAY, 30 APRIL
Student seminar presentations
4:00 – 4:30 PM - TBA
4:30 – 5:00 PM - TBA

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*It is the individual student's responsibility to be aware of and to refer to the schedule of the Science Seminar Series through the following web address: http://www.valdosta.edu/cas/scisem/. Each student is required to attend at least six (6) of these seminars and submit to their instructor a completed Seminar Evaluation Form for each seminar attended immediately following the seminar; see the Course Syllabus for details.