ECOLOGY WITH LAB
PCB 3043C

INSTRUCTORS:
Linda Griffin Gingerich, Ph.D.    gingerich.linda@spcollege.edu    727-791-2538; CLW, SS177
Craig Huegel, Ph. D.    huegel.craig@spcollege.edu    727-791-2757; CLW. SS 120A
Office Hours/Instructor Availability: As announced in class and in Angel
Instructor Web Page:    http://it.spcollege.edu/course_info/inquiry.cfm?number=278 (Gingerich)

ACADEMIC DEPARTMENT:
Dean:  Dr. John Vaughan
Academic Chair:  Linda Griffin Gingerich, Ph.D
Office Location:  Seminole
Office Location: see above (instructor)
Office Number:  UP 337B
Office Number: see above (instructor)

REQUIRED TEXTBOOK & OTHER RESOURCE INFORMATION:
Required Texts:
Elements of Ecology, 8/E  
Smith & Smith ©2012 Benjamin Cummings ISBN: 9780321736079

Recommended Texts or Other Reading Material:
Please see Angel for listing of supplementary resources, which will be updated throughout the semester.
Library:    http://www.spcollege.edu/central/libonline/.

MEETING INFORMATION:
Course Location:  CLW (Lecture = SS 159; Lab = SS 120)
Meeting Days & Times:  Lecture (SS 162) Lab (SS120)
T  10:15-12:15    T  8:00-10:00
TH  10:15-12:15 & 12:15-1:15    TH  8:00-10:00
Learning modality:  Face-to-Face; Lecture, Discussion and Lab

IMPORTANT DATES:
Course Dates:  5/14/12 – 7/19/12
Drop/Add:  5/14/12 – 5/18/12
Withdrawal Date:  6/22/12
Financial Aid:    http://www.spcollege.edu/central/SSFA/HomePage/calendar.htm

DISCIPLINE SPECIFIC INFORMATION:    http://www.spcollege.edu/bachelors/biology/
COURSE INFORMATION:

Course Description: This course is designed to teach ecology at four major levels: organismic, population, community and ecosystem. One of the aims is to interrelate the different levels of ecological study and to unify these via evolutionary and behavioral ecology. A second aim is to correlate the concepts of ecology with those learned in physiology to understand physiological ecology. This course will address both theoretical and empirical ecology as well as applied ecology with special emphasis on Florida’s ecosystems and human impacts on them. This course is a combined lecture and lab class. 92 contact hours.

Prerequisites: BSC 2010 and BSC 2010L. A knowledge of mathematics through college algebra and the ability to write research papers is expected.

GRADING:
The overall grade in this course is a combination of lecture and lab. Material asked on tests/quizzes/assignments may come from both lecture and lab.

Lecture: In lecture, we will have 2 exams (20% each) and a final essay (10%), and discussion/homework assignments & activities, including discussion participation (10%). Exam questions will be a combination of multiple choice, short answer and essay questions with emphasis on critical thinking and problem solving. Makeup exams are given ONLY if you have a documented extenuating circumstance. ALL makeup exams are essay only.

Lab: The lab portion is based on an independent research paper (20%), a presentation (5%), laboratory assignments (10%) and participation in discussion of readings and experiments (5%).

Description of Assignments are in the Assignment folders in Angel. Research Papers must be done using Microsoft Word and computer-generated graphs that can be imported into your word document (I can teach you how to graph on Excel). Papers must be submitted in the following 3 formats: 1) a printed copy, 2) an electronic file attachment into Angel mail, and 3) turnitin.com (via Angel dropbox).

To avoid plagiarism, ALL REFERENCES must be properly cited using CSE format. The proper format for scientific research papers is covered in links provided in Angel. The library can also supply you with proper CSE format. Note that papers written for scientific publication RARELY quote, so it is important to paraphrase works into your own words. A phrase longer than 6 identical words is considered plagiarized. Working together with classmates and submitting very similarly worded papers/lab reports or nearly identical graphs/tables is also considered plagiarism. ALL students in the group will receive a ZERO for the assignment. If we want you to work together and hand in very similar documents/laboratory reports or nearly identical graphs/tables is also considered plagiarism. ALL students in the group will receive a ZERO for the assignment. If you decide to work together and hand in very similar documents, we will have you hand in one and place all names on it (as in a co-authored paper). Otherwise, when you put your name on a paper or assignment, you are implying that it is YOUR OWN INDEPENDENT WORK.

Timely submission of Assignments: All homework assignments are due by 8:00 am on the designated due date. Late Homework assignments will not be accepted. Research papers will receive a 5% grade reduction if received after 8:00 am on the due date. After the due date, there is a 10% grade reduction for EACH calendar day (NOT just school day) that it is late. After 7 days, late papers will NOT be accepted.

Overall final grades will be assigned according to the following scale and are NOT negotiable:

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<thead>
<tr>
<th>GRADE</th>
<th>PERCENTAGE</th>
<th>POINTS</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
<td>900 - 1000</td>
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<tr>
<td>B</td>
<td>80-89</td>
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<td>C</td>
<td>70-79</td>
<td>700 - 799</td>
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<tr>
<td>D</td>
<td>60-69</td>
<td>600 - 699</td>
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<td>F</td>
<td>&lt;=59</td>
<td>&lt;= 599</td>
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ATTENDANCE & PARTICIPATION:

The college-wide attendance policy is included in the Syllabus Addendum at http://www.spcollege.edu/webcentral/policies.htm

Regular class attendance is expected of all students. Successful completion of this course requires regular class attendance. If you miss a class, you are responsible for making up the material. Students who miss the first two weeks of class will be automatically withdrawn from the class. If you decide to no longer attend class or must withdraw for any reason, you are responsible for ALL paperwork to be completed and turned in by JUNE 22, 2012. Since you will have daily class assignments and these cannot be made up, regular attendance is important for success.
ACTIVE CLASS PARTICIPATION: Students who are not actively participating in class will be reported to administration on JUNE 22, 2012. Administration will automatically withdraw (WF) students for non-participation. Active class participation will be judged based on timely submission of at least 70% of assigned work AND attendance. A student who has submitted 70% or more of the assigned work (in a timely manner) and/or has NO MORE THAN 3 absences by that deadline will be considered to be actively participating; A student with less than 70% timely submission of material and/or more than 3 absences will be deemed “not actively participating” and assigned a grade of “WF” by Administration. Attendance will be taken in BOTH lecture and discussion. Missing EITHER one counts as an absence.

Course Goals:

1) The student will demonstrate an understanding of the history of ecology and the techniques used to study ecology.
2) The student will demonstrate an understanding of the physical (abiotic) factors within an environment.
3) The student will demonstrate an understanding of organismic ecology, including behavioral and physiological adaptations of plants and animals in response to the physical environment.
4) The student will demonstrate an understanding of population ecology, including properties of populations, characteristics of population growth and interactions within a population.
5) The student will demonstrate an understanding of community ecology, including interactions between populations, community structure, community dynamics and control processes and the causes and consequences of spatial patterns of communities.
6) The student will demonstrate an understanding of ecosystem ecology, including ecosystem energetics, nutrient cycling, and comparison of types of biomes.

Course Objectives:

1) The student will demonstrate an understanding of the history of ecology and the techniques used to study ecology by:
   a) describing the growth and development of ecology as a science and tracing the major contributions in the field
   b) describing the division of ecology into many overlapping sub-disciplines
   c) explaining techniques used to study ecology, including empirical methods, experimental methods, statistical methods and modeling techniques, with special emphasis on some of the constraints and difficulties encountered in ecological research
   d) performing experiments and analyzing results using a variety of both empirical and theoretical techniques.
2) The student will demonstrate an understanding of the physical (abiotic) factors within an environment by:
   a) describing the effect of solar radiation on global climate, regional climates and microclimates.
   b) explaining the physical qualities of light and the effects of light within an environment.
   c) explaining temperature variations and its affect within an environment.
   d) describing the physical properties of water and their relevance.
   e) describing the water cycle, its significance and the influence of the human population on it.
   f) describing nutrient cycles, their significance and the influence of the human population on them.
   g) describing the physical and chemical properties of soil, the impact of soil qualities on the environment, factors affecting soil and human influences on soil.
3) The student will demonstrate an understanding of organismic ecology, including behavioral and physiological adaptations of plants and animals in response to the physical environment by:
   a) describing behavioral and physiological adaptations of plants and animals in response to climate variation.
   b) describing behavioral and physiological adaptations of plants and animals in response to quantity and quality of light.
c) explaining behavioral and physiological adaptations of plants and animals in response to temperature variations.

d) describing the behavioral and physiological adaptations of plants and animals in response to water quantity and quality.

e) describing behavioral and physiological adaptations of plants and animals in response to nutrient quality and quantity.

f) describing the behavioral and physiological adaptations of plants and animals in response to physical and chemical qualities of soil.

g) performing and analyzing experiments demonstrating physiological responses to environmental variables

4) The student will demonstrate an understanding of population ecology, including properties of populations, characteristics of population growth and interactions within a population by:

a) describing population density and dispersion, age structure, sex ratios, natality and mortality.

b) describing and illustrating the exponential and logistic growth.

c) explaining and exemplifying the types of factors controlling population growth, including density-dependent and density-independent factors and the evolutionary significance of these factors.

d) describing cyclic population fluctuations, chaos and extinction.

e) explaining the effects of intraspecific competition, dispersal mechanisms, reproductive patterns and other social interactions on population regulation and distribution.

f) performing actual and simulated exercises in population ecology with emphasis on learning sampling techniques for field biology

5) The student will demonstrate an understanding of community ecology, including interactions between populations, community structure, community dynamics and control processes and the causes and consequences of spatial patterns of communities by:

a) describing and graphing the effects and outcomes of interspecific competition on populations, including competitive exclusion, resource partitioning, and niche breadth reduction with examples from laboratory and field studies.

b) describing models of predation and responses (physiological, behavioral and evolutionary) of predators and prey.

c) describing parasitism and mutualism and the responses (physiological, behavioral and evolutionary) of parasites, hosts and mutualists.

d) describing and experimenting on the structure of communities, including species richness and diversity, food webs, community classification and the influence of interactions between populations on community structure.

e) explaining community dynamics, including patterns and mechanisms of succession and community stability.

f) describing, evaluating and explaining spatial patterns within communities, such as species-area relationships, island biogeography theory, edge effects, habitat fragmentation, metapopulations and patch dynamics.

g) performing both simulated and laboratory exercises on population ecology, interactions between populations, community structure and dynamics

6) The student will demonstrate an understanding of ecosystem ecology, including ecosystem energetics, nutrient cycling, and comparison of types of biomes by:

a) explaining the laws of thermodynamics and applying the principles to ecosystems.

b) describing productivity and its measurement. describing food chains.

c) describing, measuring and evaluating ecological pyramids and their.
d) describing the major nutrient cycles, including the carbon cycle, nitrogen cycle, phosphorous cycle and sulfur cycle.

e) comparing and contrasting the major nutrient cycles in terrestrial versus aquatic systems and in different biogeographical realms.

f) describing, comparing and contrasting the major biomes.

g) discussing the impact of humans on ecosystem energetics, ecological pyramids, nutrient cycles and major biomes.

**STUDENT SURVEY OF INSTRUCTION:**
The student survey of instruction is administered in courses each semester. It is designed to improve the quality of instruction at St. Petersburg College. All student responses are confidential and anonymous and will be used solely for the purpose of performance improvement.

**STUDENTS’ EXPECTATIONS AND INSTRUCTOR’S EXPECTATIONS**

**MY EXPECTATIONS OF STUDENTS:**
- Your participation in this class is critical for the learning process.
- You should read assignments before class and come to class prepared to discuss the concepts.
- You should treat the opinions of others with respect and tolerance.
- You should complete all assignments on time and with thoughtfulness.
- You should practice academic honesty in all your work. This includes working independently on ALL assignments unless you are told otherwise. All work you submit should be YOUR OWN. Unauthorized collaboration will result in a zero for the assignment, which cannot be dropped as your lowest grade.
- You should come to class on time and remain for the entire class.
- All papers and assignments are due BY 8:00 AM on the due date. **Late assignments are NOT ACCEPTED** with the exception of research papers. **Late papers** will lose 5% if submitted after 8:00am on the due date; there will then be a **10% per day deduction from the grade.** The “day” ends at midnight. While timely electronic submission is sufficient for meeting deadlines, we will not grade an assignment until we have the printed copy.
- For all classes **cell phones should be turned off and put away.**
- Texting, web-browsing, working on projects for other classes, chatting with friends, entering and leaving during lecture and other disruptive behaviors will **NOT BE TOLERATED.** You will be dismissed from the class. Two such dismissals will result in an automatic withdrawal prior to JUNE 22, 2012 or an “F” after JUNE 22, 2012.
- You should contact us promptly if there is a problem requiring our attention.

**WHAT YOU CAN EXPECT FROM US:**
- Meaningful assignments designed to broaden your knowledge of, and help improve your ability to communicate your understanding of ecology.
- Total availability to address any concerns or issues that may interfere with the learning process.
- That the class will be kept moving at a reasonable pace in order to satisfy the learning objectives.
- Thoughtful and critical responses to your written assignments to further enhance your complete understanding of the subject.
- Presentation of key elements within the assigned activities to help structure and organize your ability to learn the material.
- Fair and objective grading policies.
Dear Students,

We want to help you succeed in the study of Ecology! Unlike some biology courses you may have
Ecology is very conceptual and multidisciplinary, relying much less on straight memorization. In addition
this course will focus not only on lecture and textbook material but current literature, assignments and
current research. Here are a few tips that will help you along the way.

*Be prepared:* Read the textbook and assignments before coming to class and become familiar with
the topics and terminology. Lecture will summarize main topics and elaborate on the more challenging
concepts; it will make more sense if it is not the first time you have heard it, PLUS material from
readings and textbooks may appear on test that were not specifically discussed in lecture.

*Participate:* One of the key factors to success is attending class and taking good notes. Lectures will
expand and clarify what is presented in the text, and may also contain different information. Therefore
hearing lectures firsthand is much better than trying to piece the story together from the notes of
another student. Review your notes as soon as possible following each lecture. Re-writing them also
helps significantly. Skipping one class to study for another is an extremely POOR use of your time as
you will spend much more time learning and making up material you missed.

*Study:* Study soon and study often. Studying smaller portions daily is a much more effective method
of learning than attempting to study all the material in a few days time. It also provides you the
opportunity to seek help if you need clarification. You should plan to spend at least three hours
studying for every hour in class. Budget your time with your other courses.

*Ask questions:* There is no such thing as a “stupid” question, so do not be afraid to speak up. Do not
wait until the final exam to recognize that you are not doing well. The exams only get harder as the
quarter progresses. Please do take advantage of office hours, tutoring and review sessions. All of us
learn by different methods—we can help you figure out what works for you. You may be “studying
hard,” but still not doing well; don’t wait too long to get help!

*Practice:* Take advantage of reviews and sample questions from previous years’ exams. Partial credit
is given but the tendency is to grade very critically. An answer should be right or wrong and not "pretty
good" or "close." We hope that you will view the class as a small step towards honing your analytical
and critical thinking skills as well as comprehensive evaluation of real life situations. You will see from
reviewing previous year’s exams that regurgitation of lecture notes will not earn the "A" and in fact,
may not even earn a "C." In an upper division course such as this, the challenge is to work the
knowledge into some form that allows you to use it. This often is a difficult transition, particularly if you
are coming out of courses that use multiple choice exams and basic memorization. You may have to
adjust how you study so that you can master the exam styles. We can help you do this!

*Honor Code:* SPC and the Baccalaureate Biology program take academic honesty very seriously. In
the spirit of honesty and fairness, please protect yourself from any uncertainty regarding the honor code
and notify us immediately of any issues. EVERYTHING you submit for a grade MUST be your original
work and work that you have completed this semester; using previous homework, papers, etc. is NOT
acceptable. If you should collaborate on any project with other students, we will let you know that it is
okay to share information. Even when collaborating, you should hand in YOUR OWN WORK. We take
this VERY SERIOUSLY. The least harsh penalty is a "0" on the assignment FOR ALL PARTIES INVOLVED.
The penalty can escalate to an “F” in the course, suspension or expulsion from the college.
PLEASE BE CAREFUL.

Best of luck! We hope this course will be both challenging and rewarding for you. One main
goal of ours is to foster a fair and exciting learning environment. Remember that we are
available to facilitate your educational process. Please contact us if you have any questions
or concerns. We look forward to a great semester.

Dr. Gingerich & Dr. Huegel
SIGNATURE PAGE:

Please read the following and send an email to us via Angel that states:

“I have read, understand, and agree to abide fully by the parameters set in this syllabus and Academic Honesty Policies of the SPC (http://www.spcollege.edu/AcademicHonesty/)”

I have read, understand, and agree to abide by the parameters set in this syllabus.

I understand that I must have continuous access to, and fluency with a computer and related software throughout the course.

I understand that it is my responsibility to complete all assignments in a timely manner and that my grade will suffer should my assignments not be completed by the deadlines. I will not expect time extensions for late assignments.

I promise that all work performed and submitted in this class will be my own. I understand that if any submitted assignment is determined not to be of my own work or if I am suspected of using prohibited resources while completing an assignment, then I will be subject to disciplinary measures as stated in the syllabus and the college catalog, including failing the class.

I understand that contacting other students about the content of exams, quizzes, etc. is considered cheating. Additionally providing information to other students about exam content is also cheating. Both parties are subject to disciplinary action.

I understand that rudeness has no place in this course. I will communicate with others in a respectful, appropriate and polite manner. I also realize that failure to do so can result in my being withdrawn from the course. Rudeness includes asking another student for exam content, access to their assignments, etc. since this may result in disciplinary action against them.

I understand that excessive, unexcused absences will result in a withdrawal from the course.