

Biology 341: General Ecology Online

Course Syllabus Fall 2020

Phillip Dustan (with Erik Sotka)

Introduction:

Ecology embraces many aspects of all other biological and physical sciences. It is truly an open-ended field of study. In this particular course we shall focus on the biology of ecology. We shall explore the abiotic (physical factors) of the earth that set the stage for the structure of ecosystems. Then we shall examine communities, ecological energetics, biogeochemistry, and the fundamentals of population biology: the evolution, growth, and regulation of populations in nature. The course will finish with the concepts of community ecology and global ecology. The course and the laboratory will be online this semester due to the Covid-19 pandemic. This will be a bit strange for all of us but if we maintain our curiosity and ingenuity we should do just fine.

The learning outcomes of this class include understanding:

1. The Biosphere: How abiotic forcing functions control the distribution of biodiversity on Earth.
2. Biogeochemistry: The interaction of organisms with their chemical environment.
3. Ecological Energetics: The flow of energy and molecules through terrestrial vs oceanic communities.
4. Evolutionary Genetics: genetics of the evolutionary process.
5. Population Growth and Regulation: The role density dependent vs density independent controls.
5. The mathematics describing the growth and regulation of populations of living organisms.
6. Assembly of communities: Island Biogeography
7. Biodiversity: Niche theory and species diversity.
7. How to carry out and document ecological field observations

Critical Thinking:

Critical thinking is the common denominator between all forms of analysis. As a “college or university student, there is no more important goal than that of developing your mind, as everything you do in your life will be affected by your mind and how it operates. The quality of your learning is affected by the quality of your thinking about learning. The quality of your personal relationships is affected by the quality of your thinking about those relationships. To take command of the thinking that controls your life, you must cultivate your intellect”. (Refer to www.criticalthinking.org)

Honor Code: All class work must be your own original work and must not have been submitted for a grade in any other class while at the College of Charleston or elsewhere. Furthermore, no project done in this class may be submitted for grading in any other present or future course. To do so will be construed as a clear violation of the Honor Code. More information can be found in the *Student Handbook* at <http://www.cofc.edu/generaldocuments/handbook.pdf> and page 3.

Absences: I adhere to the College of Charleston Absence Policy as stated in the Student Handbook. If you miss a live lecture be sure to watch the video and get notes from another student. If you miss an exam I expect you to present me with a Dean’s excuse or other acceptable documentation. If you miss a lab be prepared to make up the experience and entry in your lab book.

Course requirements:

Lecture: Three (3) class exams, one original research paper and one final exam = 75% of grade

Laboratory: Field Laboratory Notebook and Documentation Assignments (presentation and written report) = 25% of grade

Text: Ecology by Cain, Bowman, Hacker, Sinaur Press 2015 (3rd edition).
Peer-reviewed publications and other articles will be posted.

Laboratory: Don't Be Such a Scientist: Talking Substance in an Age of Style, 2009 byt Randy Olson. (First or Second Editions available from Amazon used paperback (used is fine)).

Term Paper: You are required to complete a term paper. Your topic MUST be discussed with me before you begin or you will not be given credit for the work. The grade you receive for this work will carry the weight of an in-class examination. An outline of your paper is due on **October 27, 2020** and the final paper is due at the start of class on **November 12, 2020** without exception.

Science is an ongoing progression of ideas built on previous work. Your assignment is to report on the current state of knowledge of an ecological or evolutionary process of your choosing, NOT a thing or an organism, but an actual Ecological or Evolutionary Process. **You may not write a paper on global warming, sharks, coral bleaching, beach erosion, or any other trendy topic dealing with pollution or man’s impact on the Biosphere.** Start your project by finding a paper in the recent peer-reviewed scientific literature that is central to your interest. Then research the topic using other papers from the literature. After you have done some reading on your chosen topic make an appointment to discuss it me. The

paper should be at least 2500 words of text, cite a minimum of 10 peer-reviewed papers plus any other references you choose to use, and must be typed (Times Roman font, 11 or 12 pica, double spaced). Submit both paper copy and email electronic copy. **Filename = YOUR LAST NAME_PAPER_B341F2020.DOC**.

Laboratory components:

The laboratory has traditionally been a series of field trips to forest ecosystems of increasing complexity followed by a research project. This semester, lab will be a variation on that theme in the form of a self-guided ecological study in a habitat of your choosing requiring your creativity and willingness to explore the natural world. The general idea is to spend the semester surveying and observing your study site all the while documenting your observations using your mobile phone or digital camera to communicate your findings to the “average person” through photography and video. Randy Olson’s book, “Don’t be such a scientist” is a good introduction into communicating to non-scientists (<https://www.youtube.com/watch?v=XjaTDA-9 sk>).

Lab will begin with initial site selection, community structure, composition, season change, responses to weather events, and human impacts. Your grade will be based on three parameters:

1. Weekly observations (rushes) submitted online.
2. Short video documentary of your findings (10 min max)
3. A notebook of observations, data, thoughts, etc documenting your activity during the semester.

Buy a simple bound composition book for notes, be sure to wear field clothes, and learn how to avoid poison ivy, and to think about Nature. Special precautions should be taken against insect bites, especially ticks and mosquitoes which may carry Lyme disease or West Nile Virus. You will be expected to keep a notebook or “shot log” describing your experiences on field.

You will be required to submit weekly “rushes” demonstrating you visited the assigned community each week. An outline or storyline and rough draft of your presentation will be due **November 5, 2020 5pm** and the final product will be shared with your colleagues during assigned lab time the weeks of **Nov 17 and Dec 1**. A PDF file of your notebook is due **Nov 9, 2020 5pm**.

Communities to visit:

If you are in the Charleston area you may already be familiar with a number of the habitats, mostly forest ecosystems. There will be a series of forested areas (maritime, coastal, fire controlled, mature old growth, along with the urban landscape of the City and a suburb landscape undergoing rapid development. While these habitats will look different, they all function according to the same ecological principles. They all have primary producers (plants), consumers (animals), decomposers, and some biological organization and structural complexity (trees, bushes, etc). To be sure, the species composition of each community may be different as well as the physical and biological forcing functions that shape each system. If you are not in the local area we will need to discuss, based on your location, what communities you can visit safely to complete this assignment.

IMPORTANT: Your notebook MUST be a hardbound notebook (i.e. Gradeschool marbled finish type, NO spiralbound). Your field notes MUST be hand written. Field trip summary, ideas about your film, and short reports may be handwritten or typed. I expect that you will do the above assignments within a week of the fieldtrip, but it is also possible to visit a different place each week. The format of typed you add pages MUST fit the page size of your notebook and must be permanently mounted to pages in the notebook or you will not get credit for the notebook. A PDF of your notebook will be due on **Nov 9, 2020**.

GRADES CHECK LIST:

- __ 1 Three In-Class Tests
- __ 2. One Term paper – pick your topic, meet with me
- __ 3. One Lab Book
- __ 4. One Lab Video Project.
- __ 5. Complete Final Exam

Reading List: Reading for class will be provided.

Interesting Journals: Ecology, American Naturalist, Applied Ecology, Oecologia, Limnology and Oceanography, Trends in Ecology and Evolution, PeerJ, PLOS1, Science, Nature.

Office Hours:

Tues/Wed during Lab period or by appointment.
Rita Hollings Science Center: Office 223, Lab 270

Email – phil.dustan@gmail.com

Phone: 843-953-8086 (office) (843) 224-3321 (mobile)

Policy on electronic devices: Classes will be conducted online using Zoom. Please observe the common etiquette for using Zoom) <https://www.pennlive.com/coronavirus/2020/04/zoom-meeting-etiquette-15-tips-and-best-practices-for-online-video-conference-meetings.html>. Please be sure to mute your mike when you are not speaking to avoid any embarrassing sounds being shared with the group. Please mute your cell phone or other devices while attending an online class.

Grading Policy: The grading policy for this course:

A : 92-100 excellent and creative

A-: 89-92

B+ : 86-89 very good

B : 82-86 good

B-: 79-82

C+ : 76-79 fair

C : 72-76 acceptable

C-: 69-72

D+ : 68-69 passing

D : 65-68

D-: 63-65

F : < 63 failing

XF: Failure due to Academic Dishonesty

Final grades are supposed to reflect how much you have progressed and/or learned in the timespan of a course. With this in mind, one could suggest that an average student receives an average grade, a very good student a higher grade, and an excellent and creative student the highest grade. Course grade = .5 tests + .25 final + .20 lab + .05 participation

Academic Support Services—The Center for Student Learning- The CSL, located on the first floor of the library, offers a wide variety of tutoring and other academic resources that support many courses offered at the College. Services include walk-in tutoring, by appointment tutoring, study strategies appointments, Peer Academic Coaching (PAC), and Supplemental Instruction (SI). All services are described and all lab schedules are posted on the CSL website <http://csl.cofc.edu/>, or call [843.953.5635](tel:843.953.5635) for information.

College of Charleston Honor Code and Academic Integrity-

All B341 course work must be your own original work and must not have been submitted for a grade in any other class while at the College of Charleston or elsewhere. Furthermore, no project done in this class can be submitted for grading in any other future or present course. To do so will be construed as a clear violation of the Honor Code.

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the *Student Handbook* at <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

Accommodations for Students with Disabilities:

This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the [Center of Disability Services/SNAP](#), 843.953.1431 or me so that such accommodation may be arranged.

OAKS

OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials.

Inclement Weather, Pandemic or Substantial Interruption of Instruction (3.8)

If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

Online Courses with Exam Proctoring

This course may use of an exam proctoring service for the course exams. Students are responsible for registering, scheduling, and the cost of the service prior to each exam. Instructions and additional information on proctoring can be found at <https://academicaffairs.cofc.edu/distance-education/online-proctoring/index.php>.

Mental & Physical Wellbeing:

At the college, we take every students' mental and physical wellbeing seriously. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at <http://counseling.cofc.edu> or 843.953.5640 3rd Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting "4support" to 839863, visit <http://counseling.cofc.edu/cct/index.php>, or meet with them in person 3rd Floor Stern Center). These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

Food & Housing Resources:

Many CofC students report experiencing food and housing insecurity. If you are facing challenges in securing food (such as not being able to afford groceries or get sufficient food to eat every day) and housing (such as lacking a safe and stable place to live), please contact the Dean of Students for support (<http://studentaffairs.cofc.edu/about/salt.php>). Also, you can go to <http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php> to learn about food and housing assistance that is available to you. In addition, there are several resources on and off campus to help. You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. Please also consider reaching out to Professor ABC if you are comfortable in doing so.

Inclusion:

The College of Charleston offers many resources for LGBTQ+ students, faculty and staff along with their allies.

[Preferred Name and Pronoun Information](#)

[On Campus Gender Inclusive facilities](#)

[Campus Resources](#)

[College of Charleston Reporting Portals](#)

[National Resources for Faculty & Staff](#)

[GSEC Reports](#)

[Documenting LGBTQ Life in the Lowcountry](#) (CofC Addlestone Library Special Collections Project)

[College of Charleston Quality Enhancement Plan \(QEP\)](#)

[Articles about CofC and LGBTQ+ Issues](#)

Religious Accommodation for Students:

The College of Charleston community is enriched by students of many faiths that have various religious observances, practices, and beliefs. We value student rights and freedoms, including the right of each student to adhere to individual systems of religion. The College prohibits discrimination against any student because of such student's religious belief or any absence thereof.

The College acknowledges that religious practices differ from tradition to tradition and that the demands of religious observances in some traditions may cause conflicts with student schedules. In affirming this diversity, like many other colleges and universities, the College supports the concept of "reasonable accommodation for religious observance" in regard to class attendance, and the scheduling of examinations and other academic work requirements, unless the accommodation would create an undue hardship on the College. Faculty are required, as part of their responsibility to students and the College, to ascribe to this policy and to ensure its fair and full implementation.

The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the College. Faculty members are expected to reasonably accommodate individual religious practices. Examples of reasonable accommodations for student absences might include: rescheduling of an exam or giving a make-up exam for the student in question; altering the time of a student's presentation; allowing extra-credit assignments to substitute for missed class work or arranging for an increased flexibility in assignment dates. Regardless of any accommodation that may be granted, students are responsible for satisfying all academic objectives, requirements and prerequisites as defined by the instructor and by the College.

2020 – 2021 Religious Holidays¹

Date	Holiday	Religion
September 18 2020	Rosh Hashanah ²	Jewish
September 28, 2020	Yom Kippur ²	Jewish
October 2 – October 9, 2020	Sukkot ²	Jewish
October 9, 2020	Shemini Atzeret ²	Jewish
October 19 - October 26, 2020	Navaratri	Hindu
October 19, 2020	Birth of Baha'u'llah	Baha'i
January 7, 2021	Christmas ³	Orthodox Christian
February 17, 2021	Ash Wednesday (Beginning of Lent)	Christian
February 25-26, 2021	Purim ²	Jewish
March 15, 2021	Great Lent Begins	Christian
March 20, 2021	Naw-Ruz	Baha'i
April 2, 2021	Good Friday	Christian
March 26 - April 3, 2021	Passover ²	Jewish
April 12-May 11, 2021	Ramadan	Muslim
April 30, 2021	Good Friday (Orthodox) ³	Orthodox Christian
April 20 and 28, 2021	Ridvan	Baha'i

¹ The previously included Islamic holidays of Eid al-Adha and Eid al-Fitr fall outside the regular academic year and are therefore not listed here.

² *All Jewish holidays begin at sunset on the evening before the date given.*

³ *Orthodox Christian holidays begin at sunset on the evening before the date given.*

General Ecology Biology 341
Course Schedule Fall 2020 P. Dustan
Ecology by Cain, Bowman, Hacker 3rd Edition

Date	Topics with (Ch = chapters in text)
25 Aug	First Day: introductions, outline, viewpoints and perspectives
27 Aug	The Biosphere (Ch 2,3,4) Read 1: Valuation of the World's Ecosystems Goods and Services Read 2: NY_Times Gaia Explained Earth: the fitness of the environment water, carbon, and light (CH 2, 3,) Read 2: Light and Bio-optics fact sheet
1 Sep	Climates on a rotating Earth: solar angle, adiabatic cooling, coriolis force, biomes (Ch 2, 3) Read 4: MacArthur_ Climates on a Rotating Earth
3 Sep	Law of tolerance, Principle of Similitude, Constraints, Periodicities (Ch 4)
8 Sep	Thermodynamics, ecosystem homeostasis, Law of the Minimum,
10 Sep	Scaling: nesting, temporal-spatial, Triadic Approach,
15 Sep	Communities: definition, identity, and succession (Ch 16, 17)
17 Sep	Productivity: theory & photosynthesis and measurement (Ch 5, 20)
22 Sep	*** Exam #1 *** (Aug 25 through Sept 17 Biosphere through Productivity)
24 Sep	Ecological energetics, efficiency & trophic structure (Ch 21) Read 5: HSS – Hairston Slobodkin, and Smith
29 Sep	BioGeochemistry: Theory, water and carbon (Ch 22, 25) Read 6: Dirtying the Infrared Window_NASA
1 Oct	Biogeochemistry continued
6 Oct	Forest ecosystems: soils and nutrients. (Ch 22) Read 7: Biological Life of a Soil_ Stark Hubbard Brook Experimental Forest
8 Oct	Read 8: Hubbard Brook Experimentnal Forest_Likens and Boreman Marine aquatic productivity Read 9: McAllister,C.D.,T.R.Parsons,K.Stephans,and D.H. Strickland 1961. Measurements of primary production in coastal sea water using a large volume plastic sphere, Limnology and Oceanography 6:237-258, Ch 20, 21)
13 Oct	Evolutionary Ecology (Chapters 6 mostly, 7 and 8) Population Genetics- Review Mendelian Inheritance and Hardy-Weinberg Equilibrium and its consequences
15 Oct	*** Exam #2 *** (Sept 24 - Oct 13:Biogeochemistry)
20 Oct	Evolution by Natural Selection: Lamarck, Darwin, Fitzroy, and Wallace: 10 Read: Boag, P.T. and P.R. Grant: Intense natural selection in a population of Darwin's finches (Geospizinae) in the Galapagos, Science 2 Oct 1981,v214:82-84
22 Oct	Genetic variation and load: the cost of Natural Selection
27 Oct	The Modern Synthesis: Evolution and speciation: or What is a species? Geographic Variation *** Term Paper outline due 10:00 hrs***
29 Oct	***** Exam #3 ***** (Oct 13 through Oct 27 : Evolutionary Ecology)
5 Nov	Population Ecology Population growth and regulation 1: life tables to the Logistic Equation (Chapter 10) *** Lab Draft storyboard video due at 10:00 hrs***
9 Nov	(Lab notebook PDF due this Monday 2300 hrs)
10 Nov	Population growth and regulation 2: R and K selection ?
12 Nov	Species interactions: competition and predation modifications to the Logistic Equations (Ch 12, 13)
17 Nov	Niche theory Project Presentations Tuesday and Wednesday (during lab period 17 & 19)
19 Nov	Island Biogeography (Ch 18)
24 Nov	Species Diversity (Ch 16, 19) Read: Homage to Santa Rosalia_G.E. Hutchinson
1 Dec	Human Impacts on the Biosphere Project Presentations Tuesday and Wednesday (during lab period 1 & 3)
3 Dec	Last Day of Class: Global Ecology
10 Dec	Final Exam scheduled for Thursday Dec 10 @ 8-11am room TBA

Labortory Schedule

Lab is are scheduled W/Th in Ecology Lab (Rita 214) Tuesday 1:35-5:35pm and 1:35-4:35 Wednesday. I will be available online during these scheduled time. Please consult the detailed description of Lab. You will be required to submit a sample of 6-8 photographs or video “rushes” that demonstrate your progress.

WHEN YOU GO INTO THE FIELD:

DO NOT WEAR OPEN SHOES, SANDLES, FLIPFLOPS, CROCS, etc on field trip days.

Be mindful of potentially dangerous circumstances: posion ivy, “sticker bushes”, wasps, bees, snakes, etc.

Week	Dates	Destination / Activity
	25, 26 Aug	Check in , introduction to idea -Selecting a study site
1.	1, 2 Sep	Study Site: basics: who, what, where? Setting up, measurments
2.	8, 9 Sep	Ecosystem elements: Physical and biological; Censusing vs monitoring
3.	15, 16 Sep	Species check lists, ecosystem structure, etc
4.	22, 23 Sep	Fieldwork
5.	29, 30 Sep	FieIdwork
6.	6,7 Oct	Fieldwork
7	13, 14 Oct	Fieldwork
8.	20, 22 Oct	Fieldwork
9.	27, 28 Oct	Storyboarding
10.	3, 4 Nov	Election Day / draft due
11.	10, 11 Nov	Project time
12.	17, 18 Nov	Viewing and critique of video projects
13.	1,2 Dec	Viewing and critique of video projects

DO NOT WEAR OPEN SHOES, SANDLES, FLIPFLOPS, CROCS, etc on field trips. Wear closed shoes for safety.

Grading Rubrics Ecology (BIOL 341):

	Excellent 4	Above Average 3	Average 2	Below Average 1
Question selection	Identifies a creative, focused, and manageable topic that addresses potentially significant yet previously less explored aspects of the topic.	Identifies a focused and manageable/doable topic that appropriately addresses relevant aspects of the topic.	Identifies a topic that while manageable/doable, is too narrowly focused and leaves out relevant aspects of the topic.	Identifies a topic that is far too general and wide-ranging as to be manageable and doable.
Existing knowledge, research, and/or views	Synthesizes in depth information from relevant sources representing various points of view/approaches.	Presents in depth information from relevant sources representing various points of view/approaches.	Presents information from relevant sources representing limited points of view/approaches.	Presents information from irrelevant sources representing limited points of view/approaches.
Methods	All elements of the methodology or theoretical framework are skillfully developed.	Critical elements of the methodology or theoretical framework are appropriately developed however more subtle elements are ignored or unaccounted for.	Critical elements of the methodology or theoretical framework are missing, incorrectly developed or unfocused.	Inquiry design demonstrates a misunderstanding of the methodology or theoretical framework.
Analysis	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.	Organizes evidence to reveal important patterns, differences, or similarities related to focus.	Organizes evidence but the organization is not effective in revealing important patterns, differences or similarities.	No apparent organization. Evidence is not used to support assertions.
Organization	The presentation is carefully organized and provides convincing evidence to support conclusions.	The presentation has a focus and provides some reasonable evidence to support conclusions.	There is some organization, but the speaker occasionally goes off topic. Evidence used to support conclusions is weak.	No apparent organization. Evidence is not used to support assertions.
Content	The content is accurate and comprehensive. Listeners are likely to gain new insights about the topic. Clear and creative graphics	The content is generally accurate and reasonably complete. Listeners may develop a few insights about the topic. Interesting graphics	The content is sometimes inaccurate or incomplete. Listeners may learn some isolated facts, but they are unlikely to gain new insights about the topic. Acceptable graphics	The content is inaccurate or overly general. Listeners are unlikely to learn anything or may be misled. Poor graphics
Delivery	The speaker is professional, relaxed, and comfortable and interacts effectively with listeners.	The speaker is generally relaxed and comfortable. Listeners are generally recognized and understood.	The speaker occasionally appears anxious or uncomfortable, and may occasionally read notes, rather than speak. Listeners are often ignored or	The speaker appears anxious and uncomfortable and reads notes, rather than speaks. Listeners are ignored.

SAFETY POLICY AND PROCEDURES

The School of Sciences and Mathematics of the College of Charleston understands that the safety of our students, staff and faculty is of paramount importance. Engendering a safety culture is an important part of our mission in teaching and doing science. Each department, course of instruction, or research lab may require higher standards or procedures. The policies and procedures set forth below are understood to be minimum requirements across our departments.

In this document, the term "laboratory" is meant for a work space/facility where chemicals, biological agents, or equipment is used for research and/or instruction.

No one (student, staff, faculty, or visitor) will be allowed in a laboratory (teaching or research) to perform experiments or where experiments may be in progress unless these regulations are followed.

Students dismissed from a teaching lab due to violations of the safety procedures will not be allowed to re-enter the laboratory until authorized to do so by their supervisor (instructor) and, in the case of research laboratories, by the department chair or designee. Any course work missed because of a violation of these guidelines cannot be made up at another time (or by an extension of the lab period) and will be treated as an unexcused absence.

1. You are responsible for knowing the biological, chemical, electrical, ergonomic, mechanical, and physical hazards associated with the equipment and materials that are being utilized in the laboratory. Listen to all instructions and ask questions about that which you do not understand.
2. Know the location of safety equipment: telephones, emergency shower, eyewash, fire extinguisher, fire alarm pull.
3. Know the appropriate emergency response procedures. If there is an injury or emergency, call 9535611.
4. Do not work alone in the laboratory if you are working with hazardous materials or equipment.
5. Use hazardous chemicals, equipment, and biological agents only as directed and for their intended purpose.
6. Do not engage in horseplay, pranks or other acts of mischief while in lab.
7. Drinking, eating, and application of cosmetics is forbidden in laboratories where chemicals or biohazards are present. Smoking is forbidden in all College buildings.
8. Appropriate personal protective equipment shall be worn. The dress code for laboratory work when using chemicals, biological or physical hazards, or when instructed to do so by the laboratory supervisor is as follows:
 - a) Wear safety glasses or goggles at all times.
 - b) No exposed skin on arms, legs or torso.
 - c) Wear lab coats or other approved protective garments.
 - d) Wear gloves or other personal protective equipment (PPE) as directed by the instructor or mandated by prudent practices based on the chemicals being handled. If in doubt, wear appropriate gloves. Latex is not permitted. Avoid cross-contamination.
 - e) Remove PPE (gloves and lab coat) when exiting the laboratory.
 - f) Wash your hands, even if gloves were used, before leaving a lab where you did any lab work.
 - g) Closed toe shoes are required. The heel and top of foot must be covered. High heeled shoes, sandals, and perforated shoes are not permitted.
 - h) Confine long hair and loose clothing.
9. Inspect equipment or apparatus for damage before adding chemical reagents or biological samples or energizing electrical equipment. Do not use damaged equipment.
10. Never remove chemicals, biological samples, or laboratory equipment from a lab without proper authorization.

11. Presume that all chemicals and biological samples used in the laboratory are hazardous for you and the environment, unless instructed otherwise.
 12. Never leave an experiment unattended unless proper safety precautions are in place.
 13. Read all labels on chemicals twice before using them in the lab. Read all instructions twice for the operation of any equipment or machinery.
 14. Properly and safely dispose of all waste materials.
 15. Treat sharps and broken glassware containers carefully. a) Broken glass should be disposed of in properly marked safety containers. All sharps (needles, razor blades, etc.) used for any purpose must be disposed of in specially labeled SHARPS containers. b) Do not place contaminated glass in the broken glassware container. Consult your supervisor. c) Waste chemicals and contaminated PPE should be discarded as directed.
 16. When using a reagent, replace the lid immediately. Never return unused reagents to stock bottles. Take only the amount needed for your experiment.
 17. All chemicals and biological samples/media are to be disposed of in appropriately labeled containers. Specific instructions for each material will be provided. Pay attention to waste container labels before adding the material to be discarded.
 18. Use good personal hygiene. Keep your hands and face clean. Wash hands thoroughly with soap and water after handling any chemical or biological agent.
 19. Keep the work area clean and uncluttered with chemicals and equipment. Clean up the work area on completion of an operation or an experiment. Before leaving the laboratory, you are responsible for making sure your lab area is clean and organized.
 20. Never store a chemical or biological specimen in an unlabeled container.
1. Always have your College of Charleston identification and insurance information with you when working in a laboratory. MedicAlert identification must be worn if you have any potential life-threatening chemical sensitivities or medical conditions.
 2. Report any accident or injury, however minor, to your teaching assistant, instructor, or lab supervisor immediately. An accident report form must be completed and forwarded to the department chair, dean, and to the Director of Environmental Health and Safety.

If you have questions/concerns about safety in the lab please first consult your instructor. If these are not answered, please see the department chair. Finally, you may consult the director of Environmental Health and Safety, Randy Beaver at 3-6802 or beaverr@cofc.edu

Adopted: March 7, 2012

Release Form:

It is the policy of the College of Charleston that all students sign a liability waiver form in order to participate in field trips. Please sign and have two people witness your signature. Then hand it in today.

COLLEGE OF CHARLESTON
LIABILITY RELEASE, EMERGENCY MEDICAL AUTHORIZATION
AND AGREEMENT
(Domestic Travel)

1. I _____, the undersigned student desire to participate in the following activity/trip **General Ecology BIOL-341** (“Activity”), to be held on **Fall 2020 semester**. I fully understand and appreciate the dangers, hazards, and risks inherent in the Activity, in the transportation to and from the Activity, and in any independent research or other endeavors I may undertake supplemental to the Activity. These dangers, hazards, and risks can result in injury and impairment to my body, general health and well being, and could include serious or even fatal injuries. I also understand that these dangers, hazards, and risk could include loss or damage to my personal property.

2. Knowing the dangers, hazards, and risks of such endeavors, and in consideration of being permitted to participate in the Activity, on behalf of myself, my family, spouse, heirs, and personal representative(s) (the “Releasors”), I agree to assume all the risks and responsibilities surrounding my participation in the Activity, the transportation to and from the Activity, and in any independent research or other acts undertaken as supplemental to the Activity, and on behalf of myself and the Releasors I hereby release, waive, forever discharge, and covenant not to sue the State of South Carolina, the College of Charleston, and its trustees, officers, agents, employees and any students acting as employees (“Releasees”), from and against any and all liability and for any harm, injury, damage, claims, demands, actions, causes of action, costs, and expenses of any nature that I may have or that may hereafter accrue to me or a Releasor, arising out of or related to any loss, damage, or injury, including but not limited to suffering and death, that may be sustained by me or by any property belonging to me, whether caused by the negligence or carelessness of the Releasees, or otherwise, while engaged in the Activity, any act supplemental to the Activity, or while I am in transit to or from the premises where the Activity or supplemental act occurs or is being conducted.

3. I further agree to indemnify and hold harmless the Releasees from and against any loss, liability, damage or cost, including court costs and attorneys’ fees that may arise due to my participation in the Activity.

It is my expressed intent that this **LIABILITY RELEASE, EMERGENCY MEDICAL AUTHORIZATION. AND AGREEMENT** (the “Agreement”) shall bind me, the members of my family and spouse, if I am alive, and my estate, family, heirs, administrators, personal representatives, or assigns, if I am deceased, and shall be deemed as a legally binding release, waiver, discharge and covenant not to sue the Releasees.

5. I understand, agree and hereby grant Releasees permission to authorize emergency medical treatment for me, if necessary, and that such action by Releasees shall be subject to the terms of this Agreement. I understand and agree that Releasees assume no responsibility for any injury or damage which might arise out of or in connection with such authorized emergency medical treatment.

6. By signing this Agreement, I acknowledge and represent that I have carefully read this Agreement and understand its contents and that I sign this document as my own free act and deed. I further state that I am at least eighteen (18) years of age and fully competent to sign this Agreement; and that I execute this Agreement for full, adequate, and complete consideration fully intending to be bound by the same. I further state that there are no health-related reasons or problems which preclude or restrict my participation in the Activity, and that I have adequate health insurance necessary to provide for and pay any medical costs that may arise as a result of an injury to me. I recognize that the College of Charleston (“College”) is not obligated to provide for any of my medical or medication needs or insurance and that I assume all risk and responsibility for those needs. If I am a driver and will be driving a vehicle (other than a College vehicle) during the period first stated above, I certify that I will, during such period, personally carry automobile liability insurance that includes medical payments coverage.

7. I further agree that this Agreement shall be construed in accordance with the laws of the State of South Carolina. If any term or provision of this Agreement shall be held illegal, unenforceable, or in conflict with any law governing this Agreement the validity of the remaining portions shall not be affected thereby.

8. If I am an employee of the College, I do not consider the Activity within the course and scope of my employment with the College. By signing below I also agree to comply with the College’s Student Code of Conduct and all other College

regulations regarding conduct, comportment, and academic integrity during my participation in the Activity. I understand that the College has the right to enforce such standards of conduct and that I may be dismissed from the Activity at any time for failing to abide by such standards. In the event of such dismissal, I shall forfeit all my fees and other payments to the College that are associated with the Activity and I shall be responsible for the payment of my transportation expenses to return to Charleston, South Carolina.

THIS IS A LEGAL AGREEMENT AND INCLUDES A RELEASE OF LEGAL RIGHTS. READ AND BE CERTAIN YOU UNDERSTAND IT BEFORE SIGNING.

Signature: _____ Date: _____

Print Name of Student: _____

If under 18, this form must **ALSO** be signed by a parent or legal guardian before student can participate.

(Print) Parent or Guardian

Signature

Date