

Bergen Community College
Division of Mathematics, Science & Technology
Department of Biology and Horticulture

Sustainability in Nature (BIO-217)

General Course Syllabus
Revised: Spring 2015

Semester and year:
Section number:
Meeting times and locations:

Instructor:
Office Location:
Phone:
Office Hours:
Email Address:

Course Title: Sustainability in Nature (BIO-217)

Course Description: Our Earth's systems, natural and human, are experiencing sudden and dramatic changes that challenge their sustainability. The principles and practices of sustainability need to be interdisciplinary so that current needs are met without compromising the needs of future generations. This course provides a fundamental knowledge of these topics and the balance of the multiple interactions. Discussions will include responsible environmental stewardship through the actions of individuals and of private & public sectors.

Prerequisites: BIO 108 - Introduction to Environmental Biology; BIO 130 - People-Plant Relationships; or, BIO 131- General Botany

General Education Course: Yes

Course Credits: 4.0

Hours per week: 6.0: 3 hours lecture and 3 hours lab

Course Coordinator: Linda Wiles

Required Lecture Textbook: No purchased text is required, however, a lab notebook is needed, as well as a 2-3" binder for papers. Reading assignments and handouts of materials will be provided in class and/or available online.

Student Learning Objectives

The student will be able to:

1. Explore personal ethics relative to sustainability
2. Describe the history and logic of sustainable practices
3. Explain real-world application of sustainable principles
4. Identify and analyze sustainability issues from multiple perspectives
5. Demonstrate the use of sustainability indicators and tools
6. Define uncertainty constraints on knowledge as related to information literacy
7. Apply best practices in sustainability to their field of interest
8. Apply interdisciplinary practices for sustainability outside of their field of interest
9. Write about and explain the science of sustainability to general audiences
10. Evaluate challenges and solutions for sustainability
11. Identify, explain and synthesize the major issues of sustainable food
12. Analyze how agriculture interacts with environmental, economic and societal needs
13. Develop critical thinking skills for more sustainable alternatives
14. Recommend and support solutions for sustainability problems in class discussions and presentations

Assessment Criteria:

- a. Successful completion of exams – objective and essay sections
- b. Quality and completeness of laboratory assignments and any field trip assignments as recorded in a lab notebook
- c. Demonstrated insight, effort and completeness of observational essays
- d. Active supportive participation in class discussions, presentations, projects
- e. Quality and effort demonstrated for oral/written/graphic projects (group and individual)

Student Assessment Tools:

The above student learning objectives will be generally assessed or evaluated by instructors using a variety of **assessment instruments** including **lecture exams, laboratory exams, quizzes, laboratory reports, written reports, presentations, projects, etc.** The decisions concerning the type or types and number of instruments that are used in a specific section of the course will be left to the instructor of that section. This information, when given by the instructor should be recorded by the student in the **Student Assessment Section** of this document.

Course Content

This course is intended to provide a more in-depth treatment of sustainability issues introduced in other courses. It is to complement these courses, but not replicate more than 25% of the introductory material.

The focus is on two primary environments – manmade and natural.

A key component is the incorporation of a wide range of perspectives and disciplines:

Scientific: greening, ecology, carrying capacity, biodiversity; energy; water, groundwater, water quality; toxins; food, health; land use, natural hazards, earth systems

Economic & Policy: supply chains; new services & products; government, business & trade groups;

Discussion of Implementation:

Identification of what has, or has not, worked;
pros and cons of different approaches to sustainability;
the need for efforts to be measurable and apparent;

Creativity and Business Models: There is a need for innovative thinking and well-thought-out business models.

Concepts: uncertainty; experimental vs. observational approaches; prediction and predictability; resilience; modeling.

Special Features of the Course

Use of learning technologies: Internet, PowerPoint, and other technologies as selected by the instructor.

Creative expression in synthesizing and presenting is encouraged.

Research, Writing and/or Examination Requirements

As a General Education course students need to complete critical thinking, ethical implications and information literacy based assignments.

Instructors will respond to and comment on students' writing in detail.

Lecture Schedule

Week	Topic/Activity/Assignments	Learning Objectives
TBD	Individual and group project assignments will be presented as scheduled during the course	3, 4, 7, 8, 9, 14
1	Introduction, the economics of sustainable vs. non-sustainable living	1, 2, 10, 11, 13, 14
2	Built environment - urban, suburban, LEED certification, green streets, site analysis Natural environment – air, water, soil, pollution	1, 2, 10, 11, 12, 13, 14
3	Fuel efficient transportation and alternative energy, their effects on natural environments	1, 2, 10, 11, 13, 14

4	Renewable energy sources [solar, wind, water, geothermal, biomass], their effects on natural environments	1, 2, 10, 12, 13, 14
5	Built environment - reducing the impact of climate change Natural environment – natural ecology and life cycles	1, 2, 10, 11, 13, 14
6	Built environment- waste management, recycling Natural environment – composting, biochar	1, 2, 10, 11, 13, 14
7	Review, exam 1	1, 2, 6, 10
8	Built environment- environmental planning, energy efficient landscaping Natural environment – biomes, resilience	1, 2, 10, 12, 13, 14
9	Built environment- stormwater management: green roofs, permeable paving, rainwater capture Natural environment – bioswales, rain gardens, xeriscaping	1, 2, 10, 11, 12, 13, 14
10	Built environment - food choice and food systems Natural environment – organic agriculture, permaculture; home food production	1, 2, 10, 11, 12, 13, 14
11	Integrated Pest Management, prevention & control of invasive organisms	1, 2, 10, 11, 12
12	Opportunities in outdoor recreation and building support for the environment	1, 2, 10
13	Built environment – gardening and landscaping with wildlife Natural environment – increasing natural pollinator and other beneficial insect populations	1, 2, 10, 11
14	Conservation of natural resources – philosophy, practices, stewardship	1, 2, 10
15	Review and exam 2	1, 2, 6, 10

Laboratory Schedule

Week	Topic/Activity/Assignments	Learning Objectives
1	Formation of groups, project assignments, Activity: pollution lab; site analysis lab	1, 5, 13
2	Activity: Teams discussion https://mitsloan.mit.edu/actionlearning/labs/s-lab-projects.php ; LEED certification discussion	1, 3, 5, 13
3	Activity: transportation efficiency lab	1, 5, 13
4	Activity: renewable energy lab projects	1, 4, 5, 13
5	Activity: climate change lab; life cycle lab	1, 5, 13
6	Activity: waste management & recycling lab; composting, compost tea &, biochar lab	1, 5, 13
7	Activity: labs, discussions and projects overview	1, 3, 13
8	Activity: environmental planning and home landscaping projects	1, 4, 5, 13
9	Activity: biomes and biological system resilience lab	1, 5, 13
10	Activity: Stormwater management lab	1, 5, 13
11	Activity: Food choices and food production projects	1, 4, 5, 13
12	Activity: IPM (integrated pest management) lab	1, 5, 13
13	Activity: Outdoor recreation and time outside importance to mankind	1, 5, 13
14	Activity: Wildlife and pollinator lab	1, 5, 13
15	Activity: Conservation of natural resources discussions	1, 3, 13

Student Assessment:	Lecture Examinations_____	_____%
	Laboratory Component_____	_____%
	Student Project/Report_____	_____%
	Class Participation_____	_____%
	Other_____	_____%
	Total	100%

If you have a medical condition or develop a medical condition during this semester, which prevents you from fulfilling the requirements of this course, you must notify your physician. You and your physician must decide whether or not it is appropriate for you to remain in this course. If the decision is to remain in this course, please obtain a letter from your physician indicating that your continued participation in this course is appropriate and present it to the Department Chair.

Faculty Addenda: As per individual faculty member

- Lecture Attendance:** As per instructor;
- Lab Attendance:** As per instructor;
- Policy Concerning Late Assignments:** As per instructor;
- Policy Concerning Make-Up Testing:** As per instructor;
- Safety Information:** As per instructor and assigned exercise;

College Policies:

Student Responsibility

Students will be held responsible for reading all pertinent information in college publications regarding withdrawals, course drops, college deadlines, and tuition refunds. Students are responsible for compliance with the rules and regulations as stated in college publications.

Absence of Instructor

Students are expected to wait twenty minutes for a faculty member to come to class. If at the end of twenty minutes, the faculty member does not come, the students should sign an attendance sheet, which indicates the course, date, and time. A student should deliver the attendance sheet to the divisional office (A304) if between 9:00 a.m. and 5:00 p.m. or to the Evening Office (C107) if before 9:00 a.m. or after 5:00 p.m. Students cannot be penalized by faculty for not waiting longer than twenty minutes.

Academic Dishonesty and Plagiarism

Bergen Community College is committed to academic integrity – the honest, fair and continuing pursuit of knowledge, free from fraud or deception. Students are responsible for their own work. Faculty and academic support services staff will take appropriate measures to discourage academic dishonesty. **Plagiarism** is a form of academic dishonesty and may be a violation of U.S. Copyright laws. Plagiarism is defined as the act of taking someone else’s words, opinions, or ideas and claiming them as one’s own.

Consequences of Violations Academic Integrity

A. Instructor's Sanctions for a Violation

The faculty member will determine the course of action to be followed. This may include:

- Assigning a failing grade on the assignment;
- Assigning a lower final course grade;
- Failing the student in the course
- Other penalties appropriate to the violation;

In all cases, the instructor shall notify the Vice President of Student Services of the violation and the penalty imposed. The student has the right to appeal the decision of the instructor to the appropriate department head.

B. Institutional Sanctions for Violations

When a violation of academic integrity has been reported regarding a student, the Vice President of Student Services may impose disciplinary penalties beyond those imposed by the course instructor, which may include suspension or dismissal from the College. The student shall have the right to a hearing before the Vice President of Student Services or a designated judicial affairs committee. Judicial procedures governing violations of academic integrity are contained in the student handbook.

Class Attendance

All students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor for each section of each course. These will be established in writing on the individual course outline. Attendance will be kept by the instructor for administrative and counseling purposes.

Eating and Drinking

Eating or drinking in classrooms, lecture rooms, laboratories, gymnasium, swimming pool, or passageways is forbidden. Covered beverages only are permitted in the library. Eating and drinking are permitted in cafeteria and vending areas only.

Learning Assistance

Henry and Edith Cerullo Learning Assistance Center

The Tutoring Center, English Language Resource Center, Math Walk-In Center and Writing Center are collectively known as the Henry and Edith Cerullo Learning Assistance Center. The Cerullo Learning Assistance Center is located in the Pitkin Education Building, in Room L-125. The telephone number is (201) 447-7489. The Learning Assistance Center, staffed with peer and professional tutors, offers free individual and group tutoring, supplemental instruction, and online tutoring for subjects offered at the College. The Center provides alternative approaches to problem solving and organizational skills. Tutors help clarify classroom lectures and textbooks and help students prepare for exams. These services build student self-confidence and reduce fear of failure. The Center is equipped with the latest technology and software, including tapes, books, review sheets, exercises and software.

Services for Students with Disabilities

The Office of Specialized Services/ Deaf Services, located in L-115 in the Pitkin Education Center provides accommodations and auxiliary services to students with disabilities attending Bergen Community College. Students are encouraged to submit documentation to OSS during the early stages of the admission process. The suggested deadlines for submitting documentation are as follows: August 1st for fall semesters, December 1st for spring semesters. For more information please contact our office at 201-612-5270 or at www.bergen.edu/oss.

Sidney Silverman Library

Main Building, Pitkin Education Center, L-wing, 2nd Floor.

Paramus Library Hours: (201) 447-7131 or visit <http://www.bergen.edu/library/calendar/gcal.htm>

Paramus Service Desk: (201) 447-7970

Meadowlands Location: 1280 Wall Street, Lyndhurst 2nd Floor

Meadowlands Library Hours: <http://www.bergen.edu/library/calendar/gcal.htm>

Meadowlands Service Desk: (201) 301-9692

www.bergen.edu/library

Testing Services

The Bergen Community College Office of Testing Services (OTS) is located in Room S-127. OTS serves the college community by identifying, developing, procuring, administering, processing, and/or evaluating examinations, which meet a variety of administrative and instructional needs. To contact the OTS, please call (201) 447-7202. The Office of Testing Services administers makeup tests as a service for students who, for compelling and exceptional reasons, have missed a scheduled classroom examination. Students must receive prior permission from and make arrangements with their course instructors to take these examinations, under specific conditions, in the Office of Testing Services, Room S-127.

WebAdvisor

WebAdvisor is a web interface that allows students to access information contained in Datatel's Colleague, the administrative database used by Bergen Community College. Students may use WebAdvisor to register for classes, to pay tuition and fees, to view their class schedules, to check grades, to check on progress toward degree requirements, etc. WebAdvisor accounts are available for all students enrolled in credit programs. New students are strongly encouraged to attend an in-person registration or advisement session before using a WebAdvisor account. Eligible students without WebAdvisor user names and passwords may access their WebAdvisor account by going to go.bergen.edu and selecting "I'm new to WebAdvisor." Then, follow the on-screen directions. Check the WebAdvisor FAQ for answers to common questions, such as how to reset your password. Students must have a valid e-mail address on file with the College to use WebAdvisor