**General Environmental Science I**

ENV 121– Fall 2017 – 4 credits

Lecture (001A): Tuesdays 2:00 – 4:40pm; Bisdorf 457

Lab (0A1A): Thursdays 2:00 – 4:40pm; Bisdorf 413

Instructor: Dr. Christine Bozarth

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Office hours: M/W 12-4pm; T/R 12-1pm; or by appointment

**What You Will Learn**

Welcome to General Environmental Science I. This course explores the fundamental components and interactions that make up the natural systems of the earth. It introduces the basic science concepts in the disciplines of biological, chemical, and earth sciences that are necessary to understand and address environmental issues. The material you learn will increase your science literacy and your appreciation of the natural world.

**What I Expect of You**

Come to class ready to learn! This means that you must arrive on time, only use electronic devices for class, actively participate in class, and respectfully listen to me and to your fellow students. If you are having difficulty with a concept or assignment, you are encouraged to contact me. This is a challenging course with a lot of material, but you are all serious students who can take the initiative to succeed.

**What You Can Expect of Me**

I will present the material to you in a clear and engaging manner. I will make myself available to you electronically and in person to clarify concepts. I will do my best to teach so that students with all learning styles who *desire* to succeed in this course *can* succeed. I will always treat you with respect.

**Prerequisites**

You should be able to express yourself both orally and in writing at a college freshman level as measured by a college English competency exam (ENG 111 or by my permission).

**Required Text**

Textbook: Neff, J. *A Changing Planet*, Benjamin-Cummings Publishing. 2017. Online.

You can purchase the access code for this online-only book in the bookstore or online. ***Access your account through our class BB page.***

Lab Manual: individual labs available on BB

**Class Cancellations**

If class is cancelled, we continue with lecture as if the cancellation did not occur. If you are unsure what will happen if class is cancelled, check BB for announcements.

**Honor Code**

Northern Virginia Community College expects the highest standards of academic honesty. Academic dishonesty is prohibited in accordance with subsection II of the Student Conduct Rights and Responsibilities, the details of which can be found in your student handbook (http://www.nvcc.edu/resources/stuhandbook). You are prohibited from cheating on exams and assignments, unauthorized access to exams and course materials, and other activities detailed in your student handbook. Students that violate the honor code will receive a failing grade and will be expelled from this course at my discretion.

Academic dishonesty shows a lack of respect for your professor, your fellow students, your school, and yourself.

**Drop/Withdraw/Audit/Incomplete**

It is your responsibility to drop or withdraw from this course if you choose. I will not drop or withdraw you merely because you stop coming to class. If you wish to audit the course, you must be given my permission and you must *begin* the course as an audit. You may not take the course for a grade and then switch to audit. I will only grant incompletes if you are in dire circumstances. The division dean and the provost must approve incompletes. You must have documentation for any health claims from a medical professional.

For details, please see: http://www.nvcc.edu/academics/academic-calendar/#f17.html.

Last day to drop with tuition refund: **9/7**

Last day to withdraw without grade penalty: **10/31**

**Students with Special Needs**

If you are a student with special needs, please contact disability services at http://www.nvcc.edu/depts/disability. Please then contact me to provide me with documentation from disability services and to discuss special accommodations you need. This should all be done at the beginning of the semester.

**Online Work** – Reading and Assignments Before Class

Every week, I will assign you reading and assignments in the e-book on the REVEL website. You must do this *before* you come to class. REVEL assignments are worth 20% of your total grade. You must access REVEL through our Blackboard site.

**In-Class Work**

Each lecture period is divided in to different activities. The exact times may change, but the basic schedule for each lecture is:

30 minutes – review of online work

30 minutes – mini-lecture

60 minutes – group activity

**Review of online work** – I address your questions about the reading and assignments.

**Mini-lecture** – Short lecture reinforcing concepts covered in online reading

**Group activity** – Guided group or individual work; typically, data interpretation, case study, role-playing, presentations, or other activities; worth 20% of your total grade

You might notice that the lecture period schedule is less than the 2 hours and 40 minutes allotted for lecture. This is because you are expected to spend time outside of class on reading and online assignments.

**Attendance**

Since coming to class late is disruptive, I will take attendance at the beginning of each lecture. If you miss attendance, then you lose points for that day. Attendance is worth 5% of your total grade.

**Lecture Exams** – During the semester, there will be four exams on material from the e-book and my mini-lectures. Exams will be multiple choice. You will need a scantron. Exams are worth 20% of your total grade.

**Final Project** – A final project in the form of a video is worth 10% of your total grade. I will work with you along with the Technology Innovation in Learning and Teaching (TILT) office during the last few weeks of class.

**Grading** – I will drop your lowest group activity grade. You cannot make up missed work. I use this general grading rubric for group activities.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Poor | Satisfactory | Excellent |
| Grammar and organization | 1 | 2 | 3 |
| Shows critical thinking | 1 | 2 | 3 |
| Answers questions correctly | 1 | 2 | 4 |

**Plagiarism** – As in all your classes at NOVA, plagiarism is not tolerated. If you simply copy and paste, there is no way for me to know if you understand what you just wrote. Changing one or two words in a sentence is not a good way to avoid plagiarism. For example, changing, “Of the 578 birds collected, 55% of the species recorded had microplastics in their digestive system” to “Of the 578 birds *found*, 55% of the species recorded had microplastics in their digestive system” is still plagiarism.

**Lecture Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week # | Date | Reading and Assessment Before Class | Group Activity | Exam |
| 1 | 8/22 | None | How to Recognize and Use Types of Science Literature | None |
| 2 | 8/29 | The Science of Sustainability: Introduction; Video; The Scientific Method and Process; Approaches to Science; Science, Pseudoscience, and the Evaluation of Scientific Claims; The Characteristics of Environmental Systems; The Language of Science | Guided Data Explorations – Understanding and Interpreting Graphs | None |
| 3 | 9/5 | Biodiversity and Evolution: Introduction; Video; The Building Blocks of Diversity; The Origins of Biodiversity; The Characteristics of Biodiversity | HHMI Virtual Lab – Stickleback Evolution | None |
| 4 | 9/12 | Biodiversity and Evolution: Earth’s Evolutionary History of Biodiversity; Extinctions; Modern Biodiversity Loss; The Implications of Modern Biodiversity Loss | Endangered Species on the IUCN Red List | None |
| 5 | 9/19 | Populations and Communities: Introduction; Video; Limitations on the Growth and Survival of Organisms; Populations and Population Growth; Carrying Capacity | Guided Data Explorations – Population Growth Rates | Exam 1 |
| 6 | 9/26 | Populations and Communities: The Structure of Communities; Energy Flow through Communities; Changes in Communities over Time; Biological Invasions | HHMI BioInteractives –Gorongosa National Park | None |
| 7 | 10/3 | Ecosystems and Biomes: Introduction; Video; Ecosystems Characteristics; The Flow of Energy, Carbon, and Oxygen through Ecosystems; The Role of Soil and Nutrients in Ecosystems | The Dust Bowl | None |
|  | *10/10* | *Fall Break – No Classes* |  |  |
| 8 | 10/17 | Ecosystems and Biomes: Nutrient Limitations in Ecosystems; Ecosystem Services; Biomes | Planet Earth: Jungles | None |
| 9 | 10/24 | Freshwater: Freshwater Ecosystems  Oceans: Marine Ecosystems; Marine Primary Productivity and Food Webs | Marine Ecosystems | Exam 2 |
| 10 | 10/31 | Biogeochemical Cycles: Introduction; Video; How Nutrients Move through the Environment; The Carbon Cycle | Guided Data Explorations – Examining Seasonal and Hemispheric Variations in CO2 Concentrations | None |
| 11 | 11/7 | Biogeochemical Cycles: The Nitrogen Cycle; The Phosphorus Cycle; The Sulfur Cycle | PBS Poisoned Waters | None |
| 12 | 11/14 | The Atmosphere and Air Pollution: Introduction; Atmospheric Structure and Properties; Atmospheric Circulation; Winds and Weather; Weather Means and Extremes | Work on Video Project – Visit TILT | None |
| 13 | 11/21 | Oceans: Introduction; The Structure and Composition of the Oceans; The Currents and Circulation of the Oceans; El Niño and La Niña | Work on Video Project – Script Work and Review | Exam 3 |
| 14 | 11/28 | Human Populations: Introduction; Video; Age Structures and the Demographic Transition; Fertility and Human Population Growth; Disease, Death, and Human Population Growth | Understanding Original Science Articles | None |
| 15 | 12/5 | Human Populations: Environmental Impacts of the Human Population; Future Human Population Trends | Guided Data Explorations – Human Populations  Video Screening | None |
| 16 | 12/12 | **Meet at 3:30pm** |  | Exam 4 |

**Lab**

**Attendance**

You must be on time for labs. If you are more than 10 minutes late for lab, I reserve the right to deny you entry to the lab. You need my permission to leave lab more than one hour early. You must attend a lab to do the BB quiz for that lab. There will be *no opportunity to make up missed labs.*

**Grading**

In order to pass ENV 121, you may miss no more than *three labs* during the semester, regardless of your grade.

After every lab, you will take an open-notes, timed (10 minutes) quiz on BB due by the start of the following week’s lab. These quizzes are worth 15% of your total grade. At the end of the semester, I will administer a lab final exam worth 10% of your total grade.

|  |  |
| --- | --- |
|  | Percent of Grade |
| *Lecture* |  |
| Attendance | 5% |
| Online Assessment | 20% |
| Lecture Exams | 20% |
| Group Activity | 20% |
| Video Project | 10% |
| *Lab* |  |
| Lab Quizzes | 15% |
| Final Exam | 10% |
|  |  |

**Lab Safety**

Before our first lab, you must *sign the safety rules* on BB (“Alexandria Science Lab Safety”). Throughout the semester, please be especially aware that you must wear *appropriate footwear* and *clean up* after each exercise.

**Lab Schedule**

**Grading**

|  |  |
| --- | --- |
| DATE | LAB TITLE |
| 8/24 | *No Class* |
| 8/31 | The Scientific Method I |
| 9/7 | The Scientific Method II |
| 9/14 | Forest Community I (at Ford Nature Center) |
| 9/21 | Forest Community II |
| 9/28 | Human Resource Consumption |
| 10/5 | Evolution |
| 10/12 | Species Interactions |
| 10/19 | Plate Tectonics I |
| 10/26 | Plate Tectonics II |
| 11/2 | History of the Earth |
| 11/9 | Human Populations |
| 11/16 | Lab Final Exam |
| 11/23 | *Thanksgiving – No Class* |
| 11/30 | Work on Video Project (in Lab) |
| 12/7 | *No Class* |