

# Environmental Systems Science

ENVST.UA 100  
Fall 2016  
M&W 11:00 – 12:15  
5 Washington Place, 101

Professor Andrew Bell

## Professor Bell

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## Carolyn Hayek

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## Steffen Merte

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## Drew Bush

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### Course Overview:

A comprehensive survey of critical issues in environmental systems science, focusing on: human population; the global chemical cycles; ecosystems and biodiversity; endangered species and wildlife; nature preserves; energy flows in nature; agriculture and the environment; energy systems from fossil fuels to renewable forms; Earth's waters; Earth's atmosphere; carbon dioxide and global warming; urban environments; wastes; and paths to a sustainable future. This course is a gateway to the Environmental Studies major and minor, and one of its core courses. It will cover a very significant amount of demanding material, in order to prepare students for upper-level courses. This course will be challenging, and students should expect a steep learning curve. Teaching Assistants will be available to help students along the way.

### Course Objectives:

This course will serve as one of the two required introductory core courses for students entering the major or minor in Environmental Studies. It will provide students with a comprehensive survey of major topics in environmental systems science, from the structure and dynamics of the natural environment to human impacts upon the environment of living things, air, water, and soils. This course will serve as the main technical introduction for students in the Environmental Studies major who are taking the Environmental Science Track, so instructors of the subsequent, more specialized courses in the Environmental Science Track can assume that students have the background of a general environmental science course. For students who are taking the Environmental Values and Society Track in the Environmental Studies major, this course will serve as the main source of technical understanding, so it must be broad enough to provide a foundation for their further work in their track.

### Recitations:

Time:	Location:	Recitation Leader:
Tues. 8:00 – 9:15 am	12WV L113	Steffen Merte
Tues. 9:30 – 10:45 am	12WV L113	Carolyn Hayek
Tues. 2:00 – 3:15 pm	12WV L113	Carolyn Hayek
Wed. 8:00 – 9:15 am	12WV L113	Steffen Merte
Wed. 3:30 – 4:45 pm	25W4 C-12	Drew Bush
Thur. 9:30 – 10:45 am	12WV L114	Drew Bush

### Course Textbook:

*Environmental Science*

Cutler Cleveland and Robert Kauffman

READINGS: papers that are relevant to particular weekly topics might supplement the readings noted in the weekly syllabus above.

**Academic Integrity:** I take academic integrity very seriously and will follow the CAS guidelines and procedures outlined on the following web page: <http://cas.nyu.edu/page/academicintegrity>. These guidelines are also included at the end of this document.

### Grading:

Exams	70%
Recitation	30%
Attendance (5%)	
Homework (25%)	

**Questions about grades:** Request for a review or clarification of any grade must be submitted in writing. The printed request should contain a substantive description of how the originally submitted response merited greater consideration, without adding new or different information to the response. Assignment grade requests should be sent to your TA, and exam requests should be sent to Prof. Bell. Requests must be sent no sooner than 24 hours from receiving the grade, and no later than one week of receiving the grade. After a week, grades will not be reviewed. Additionally, if you turned in an assignment and did not get credit you must inform us one week after the assignment grades are posted. If you tell us in the last few days of the semester you WILL NOT get credit.

**NOTE: A grade review is a review, not a bump. Your grade might go up, or it might stay the same. It might also go down. You should be willing to accept this possibility before you ask for a grade review.**

**Etiquette:** These are not rules, but expectations for basic etiquette with respect to student engagement in the class. Specifically,

- Cell phones should not ring audibly during lecture
- Students should not arrive casually late to lecture
- Emails to instructors should include a salutation, a clear statement, and a signature

**Format of Exams:** Multiple choice, short fill-ins, short written answers, graphs and diagrams to draw, and numerical questions. Material for the exams is drawn from the bold terms and concepts in the book, from the figures in the book, from lectures, and from homework.

**Quizzes:** Short multiple choice quizzes will be periodically given at the beginning of lecture (first 5 minutes). Points earned on quizzes across the semester can contribute up to 4% extra credit to the final grade. These quizzes are thus an opportunity to bump (from a B to a B+, e.g.). There are no make-up quizzes, so if you miss class or are late you will not have an opportunity to earn those extra credit points.

**Homework:** There will be homework assignments given during weekly recitations. Homework will focus on scientific research, writing and how to display and analyze data in Excel. These skills are essential to prepare you for upper-level science courses. Late homework will not be accepted and will result in a 0 for that assignment. Note that a 0 on any one assignment will bring your assignment average down 10 points, and your course grade down 2.5 points.

**Policy on missed tests:** Tests will be excused only for medical or family emergencies. I need to be notified by phone or email before the exam time. An **unexcused** absence from an exam will be calculated as 0% for that particular test! If you miss an exam and present a legitimate excuse, a make-up test will be made available to you. There will be only one opportunity for such an exam; it could be an essay test, and the appropriate instructors will grade it. This situation will be dealt with partly on an individual basis.

**NYU Classes:** I will use NYU Classes site for the course to post this syllabus and any updates, the homework, supplementary articles, and other information as necessary about the course during the semester.

**Disability Disclosure Statement:** Academic accommodations are available to any student with a chronic, psychological, visual, mobility, learning disability, or who is deaf or hard of hearing. Students should please register with the Moses Center for Students with Disabilities at [212-998-4980](tel:212-998-4980).

**Course schedule:**

*Readings should be completed before class. Assignments are noted on the weeks they are due.*

<b>Lecture Dates</b>	<b>Monday</b>	<b>Wednesday</b>	<b>Recitation</b>
		<b>Module 1: Introduction to Energy, Matter and Systems</b>	
Sept 7		Introduction to the Course & an Overview of Environmental Science  <i>Read Chapter 1</i>	<b>No Recitation</b>
Sept 12, 14	Energy, Matter, and Systems  <i>Read Chapters 2 and 3</i>	Physical Systems  <i>Read Chapter 4</i>	Reading scientific literature  <i>Assignment 1 (Pre-assessment) - Due before recitation Sept. 13-15</i>
Sept 19, 21	<b>George Reis</b> Supervisor Sustainable Landscaping & VP Facilities and Construction	Energy in Biology  <i>Read Chapter 5</i>	Green roofs discussion and Tour of NYU green spaces  <i>Assignment 2 (Reading Scientific Literature) - Due in recitation Sept 20-22</i>
Sept 26, 28	Material Cycles  <i>Read Chapter 6</i>	Biomes  <i>Read Chapter 7</i>	Introduction to displaying data  <i>Assignment 3 (Green Roofs) - Due in recitation Sept. 27-29</i>
Oct 3, 5	Succession  <i>Read Chapter 8</i>	Carrying Capacity  <i>Read Chapter 9</i>	Exam 1 Review  <i>Assignment 4 (Data 1) - Due in recitation Oct. 4 - 6</i>
Oct 12		<b>Module 1 Exam</b> <i>Includes all material from Sept. 3 up to and including Sept. 28</i>	<b>No Recitation</b>  <i>No assignment due</i>
		<b>Module 2: Natural Resources</b>	
Oct 17, 19	<b>Peter Groffman</b> Senior Scientist Cary Institute of Ecosystem Studies <b>Worms Bad / Snow Good</b>	Biodiversity  <i>Read Chapter 12</i>	Research Questions and Hypothesis building  <i>No assignment due</i>
Oct 24, 26	Soils	<b>Sonali McDermid</b> Assistant Professor, NYU-ES	Understanding statistical tests

	<i>Read Chapter 15</i>	<b>Agriculture and Climate</b>	<i>Assignment 5 (Research Questions and Hypotheses) - Due in recitation Oct. 25-27</i>
Oct 31, Nov 2	Agriculture <i>Read Chapter 16</i>	Forests <i>Read Chapter 17</i>	Population, Land and Food <i>Assignment 6 (Statistical Tests) - Due in recitation Nov. 1-3</i>
Nov 7, 9	Water <i>Read Chapter 18</i>	<b>Guest Lecture – Daniel Pauly</b>  <b>Distinguished Visiting Professor of Environmental Studies</b>	Exam 2 Review <i>Assignment 7 (Population, Land, and Food) - Due in recitation Nov. 8-10</i>
Nov 14, 16	Climate Change <i>Read Chapter 13</i>	<b>Module 2 Exam</b>  <i>Includes all material from Sept. 30 up to and including Nov.</i>	Land cover change  <i>No Assignment Due</i>
		<b>Module 3 Energy, Development, and Impacts</b>	
Nov 21	Air Pollution and Ozone <i>Read Chapter 14</i>		<b>No Recitation</b>  <i>Assignment 8 (Land cover change) - Due by the beginning of lecture Nov. 21</i>
Nov 28, 30	Fossil Fuels <i>Read Chapter 20</i>	<b>George Thurston</b> <b>Professor</b> <b>NYU - Environmental Health Science</b> <b>Air Pollution and Human Health</b>	Air Quality  <i>No Assignment Due</i>
Dec 5, 7	Nuclear Energy <i>Read Chapter 21</i>	Renewable Energy <i>Read Chapter 22</i>	Energy Scenarios  <i>Assignment 9 (Air Quality) - Due in recitation Dec. 6-8</i>
Dec 12, 14	Materials <i>Read Chapter 23</i>	The end. <i>Read Chapter 24</i>	Exam 3 Review  <i>Assignment 10 (AMNH) - Due in recitation Dec. 13-15</i>
Dec 19 (10AM)	<b>Module 3 Exam</b> <i>Includes all material from Nov. 4 up to and including Dec. 12</i>		

## Academic Integrity

*As you begin your College career—attending classes, participating in extracurricular activities, performing community service, and thinking about where your academic and career interests lie—it is important to reflect on your role and responsibilities within an academic community.*

### I. A COMMUNITY OF THE MIND

The College is a "community of the mind." Its students, faculty, and staff all share the goal of pursuing truth through free and open inquiry, and we support one another's endeavors in this regard. As in any community, membership comes with certain rights and responsibilities. Foremost among these is academic integrity. Cheating on an exam, falsifying data, or having someone else write a paper undermines others who are "doing it on their own"; it makes it difficult or impossible to assess fairly a student's interest, aptitude, and achievement; and it diminishes the cheater, depriving him/her of an education. Most importantly, academic dishonesty is a violation of the very principles upon which the academy is founded. Thus, when students enter the College, one of the first things that they are asked to do is to sign a community compact, recognizing these principles of academic integrity. For this reason also, violations of these principles are treated with the utmost seriousness. *"Nothing is more basic to living and working together than trust. Without it, as Thomas Hobbes warned, humanity is reduced to a 'war of all against all.' Trust is the condition of cooperation and of social relationships themselves. We learn as children not to be naively trusting, but instead to watch to see which people and which organizations deserve to be trusted. We are disappointed all too often. Law courts and religions try to make people more trustworthy. But being the sort of person who can be trusted is still a personal achievement. Trust does not depend on people putting aside their personal benefits, but on people pursuing them in ways that make them dependable partners to others. Thus lovers try to be faithful and friends loyal. Even in competition, trustworthiness is important. Not only are there punishments for those who cheat, but today's competitor may readily become tomorrow's colleague. An institution like a college depends enormously on trust. Students rightly expect professors to teach honestly and not deceive them. Society trusts scientists not to lie about the results of their research. Neither the pursuit of new knowledge nor the effort to preserve and pass on old wisdom can flourish unless we can trust each other to be intellectually honest."* — Craig Calhoun, University Professor of the Social Sciences

### II. SOME GUIDELINES

Academic honesty means that the work you submit - in whatever form - is original. Students are expected - often required - to build their work on that of other people, just as professional researchers and writers do. Giving credit to someone whose work has helped you is expected; in fact, not to give such credit is a crime. Plagiarism is the severest form of academic fraud. Plagiarism is theft. Obviously, bringing answers into an examination or copying all or part of a paper straight from a book, the Internet, or a fellow student is a violation of this principle. But there are other forms of cheating or plagiarizing which are just as serious, for example:

- presenting an oral report drawn without attribution from other sources (oral or written);
- writing a paragraph which, despite being in different words, expresses someone else's idea without a reference to the source of the idea;
- submitting essentially the same paper in two different courses (unless both instructors have given their permission in advance);
- giving or receiving help on a take-home examination or quiz unless expressly permitted by the instructor (as in collaborative projects)
- presenting as your own a phrase, sentence, or passage from another writer's work without using quotation marks;
- presenting as your own facts, ideas, or written text gathered or downloaded from the Internet;
- submitting another student's work with your name on it;

- purchasing a paper or "research" from a term paper mill;
- "collaborating" between two or more students who then submit the same paper under their individual names.

Term paper mills (web sites and businesses set up to sell papers to students) often claim they are merely offering "information" or "research" to students and that this service is acceptable and allowed throughout the university. THIS IS ABSOLUTELY UNTRUE. If you buy and submit "research," drafts, summaries, abstracts, or final versions of a paper, you are committing plagiarism and are subject to stringent disciplinary action. Since plagiarism is a matter of fact and not intention, it is crucial that you acknowledge every source accurately and completely. If you quote anything from a source, use quotation marks and take down the page number of the quotation to use in your footnote.

When in doubt about whether your acknowledgment is proper and adequate, consult your instructor. Show the instructor your sources and a draft of the paper in which you are using them. The obligation to demonstrate that work is your own rests with you, the student. You are responsible for providing sources, copies of your work, or verification of the date work was completed. While all this looks like a lot to remember, all you need to do is to give credit where it is due, take credit only for your original ideas, and ask your instructor or adviser when in doubt.

Consult the APA, MLA, or Chicago style guides for accepted forms of documentation. You can access these resources, as well as additional information on proper citations on the [NYU Libraries Citation Style Guide](#).

### III. PROCEDURES AND SANCTIONS

The penalty for academic dishonesty is severe. The following are the procedures as approved by the Faculty of Arts and Science. See also the *College Bulletin*.

1. If a student cheats on an examination or in laboratory work or engages in plagiarism, appropriate disciplinary action should be taken. The Department can take the following actions:
  - a) The faculty member, with the approval of the Director of Undergraduate Studies (Director), may reduce the student's grade or give the student an F in the course.
  - b) If after lowering the grade or assigning an F the department believes a more severe penalty (i.e., probation, suspension, expulsion) is warranted, it can refer the case to the Dean or his/her representative (Associate Dean for Students) for further action.
2. In all cases of either (a) or (b), the Director shall inform the Department Chair of any action in writing and send copies of this letter to the Dean and to the student. The letter shall include the nature of the offense, the penalty, and the right of the student to appeal such penalty. A copy of the letter shall be kept in a confidential chairman's file and not in the student's departmental file. The Dean's office copy shall also be kept in a confidential file. (The Professor and/or the Director is encouraged to meet with the student and discuss the nature of the offense and the action taken.)
3. For cases involving a first offense at New York University, the Dean shall send the student by registered mail a notice that a second offense will result in a one-semester suspension, or a more severe penalty. (The student is also called in to discuss the offense, and review the consequences of the disciplinary action.)
4. For cases involving a second offense, the Dean shall proceed as follows:
  - a) Upon receiving a second Director's letter concerning a given student, the Dean shall convene a three-member *ad hoc* committee, with no member being from the department involved, to examine the evidence. This *ad hoc* committee shall consider if there are reasonable grounds to believe that cheating/plagiarism has occurred and if so, shall affirm the suspension penalty. It shall report its conclusion to the Dean within three business days.

b) If the committee affirms the suspension, the Dean shall send the student by registered mail the suspension letter within two business days of receiving the report. The letter shall advise the student of his or her right to appeal. The student shall have two business days from the letter's delivery to request an appeal of the suspension as provided in Section 5 (below). The suspension shall ordinarily be stayed during the pendency of appeal.

c ) If the committee does not affirm the suspension, the report shall be kept on file for a one-year period.

5. The student in all cases has the right to appeal to the Dean. In the event of an appeal, the Dean shall elicit a written complaint from the faculty member and proceed as described above.