

Environmental Systems Science
ENVST.UA 100 Fall 2020
M&W 11:00 AM – 12:15 PM

Professor Matthew Hayek

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Office Hours: Monday & Wednesday, 1 – 3pm, appointment only: <https://bit.ly/2QiNvOz>

Course Overview

A comprehensive, scientific survey of topics in environmental systems. 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. Specifically, the course focuses on: human population; 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.

Course Objectives

This course will serve as one of two required core courses for students entering the Environmental Studies major or minor. It will provide students with a survey of major topics in environmental systems, from how the natural environment functions to how human impact living things, air, water, and soils. This course will serve as a technical introduction for students in the major who are taking the Environmental Science Track, to give them the necessary background for subsequent, more specialized science courses. For students who are taking the Environmental Values and Society Track in the major, this course will serve as the main source of technical understanding, broad enough to provide a foundation for their further work.

Recitations

Time	Zoom meeting ID
Tues 8:00 – 9:15 am	3085659853
Tues 9:30 – 10:45 am	5940087273
Tues 2:00 – 3:15 pm	5940087273
Wed 8:00 – 9:15 am	3085659853
Wed 3:30 – 4:45 pm	4653933696
Thurs 9:30 – 10:45 am	4653933696

Course Textbook

Environmental Science, Cutler Cleveland and Robert Kauffman

Online only, purchase 1-year license at:

<https://store.trunify.com/products/new-york-university-environmental-systems-science-envst-ua-100-hayek-fall-2020>

Additional Readings

Papers that are relevant to particular weekly topics might supplement the readings noted in the weekly syllabus schedule below.

Grading

Exams	70%
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. Hayek. 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, we cannot verify that you submitted your work in a timely manner and 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: expectations for basic etiquette with respect to student engagement in the class in this year's online format. Specifically,

- Silence your ring tones, alarms, and push notifications sounds on all of your devices: phones, computers, and tablets.
- Stay with your computer for the entire lecture. Cameras are not required to be on, but occasional questions and online polls will be posed to the class. These will not be graded for correctness, but timely participation is part of your participation grade.
- Students should not log in casually late to lecture.
- Emails to instructors should include a salutation, a clear question or request, and a signature.

Course preparation: Microsoft Excel

This course involves multiple data analysis exercises in Microsoft Excel. Even for some of our more computer-savvy students, surprising obstacles may arise. Make sure to take the following steps before your third recitation, the week of September 21:

1. Download a recent version of Excel (2016, 2019, or 365; v16.0 or later), part of the Microsoft Office suite.
 - Students are eligible for free Microsoft Office by registering with their NYU email using this link
<https://www.microsoft.com/en-us/education/products/office/default.aspx>
2. Enter data, use a function, and make a chart, following these steps.
 - Create two column headers: Year, and Value.
 - Create a column of six years under the Year header: 2015 to 2020.
 - Create a column six values under the Value header: 2, 4, 8, 16, 32, 64.
 - Calculate the sum of Value column using the SUM() function.
 - Calculate the mean of the Value column using the AVERAGE() function.
 - Create a 2D line chart, with markers, that has years on the x-axis and values on the y-axis.

The above exercise is primarily for your benefit, as well as the TAs' who will be working to get everybody up to speed later in the course. If you get stuck, YouTube tutorials and online Office help are easily searchable. Keep in mind that the Mac and Windows versions of Office have different menus and user interfaces, so require two different sets of help and tutorials. Please do *not* reach out to Professor Hayek or your TA about helping you with these steps. The above exercise is intended to make the first Excel assignment easier, which your TAs will go over with you in the third recitation. This exercise is intended to get you through basic tasks, freeing your attention to dive deeper when the course really gets going.

Exams

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.

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.

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%, and your course grade down 2.5%.

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 5% 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.

Special talks and events: talks and special events will occur throughout the semester. Students can receive extra credit for attending up to two talks, each in place of a quiz grade. To receive the extra credit, students will have to write an accurate, two-paragraph summary on the event and submit to their TA. The first special event is on October 29 at 6:00 PM Eastern Time, wherein Dr. Anna Paltseva and Professor Hayek will give an online public talk on *Food, Soils, and Climate Change*.

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

Course Material Confidentiality: Materials from this year's course including assignments and exam questions, and especially answers, should never be shared with others outside of the class or uploaded onto the internet. Likewise, use of materials from previous years to answer questions in this year's assignments or exams is not permitted, and will result in an immediate failing grade on the assignment or exam. Either action will also result in a referral to the dean.

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 or mosescsd@nyu.edu. The Moses Center website is www.nyu.edu/csd.

Course Calendar

Week		Monday	Wednesday	Recitation
Module 1: Introduction to Energy, Matter, and Systems	Sept 2		Overview of Environmental Science <i>Read Chapter 1</i>	No recitation
	Sept 9	Labor Day <i>No class</i>	Energy, Matter, & Systems <i>Read Chapters 2 & 3</i>	Reading scientific literature <i>Assignment 1 due</i>
	Sept 14, 16	Physical Systems <i>Read Chapter 4</i>	Energy in Biology led by Andrea Gomez <i>Read Chapter 5</i>	Green roofs discussion (& virtual tour) <i>Assignment 2 due (reading lit)</i>
	Sept 21, 23	Guest: George Reis Manager of Grounds at NYU Sustainable Landscaping	Biomes <i>Read Chapter 7</i>	Introduction to displaying data <i>Assignment 3 due (Green Roofs)</i>
	Sept 28, 30	Succession <i>Read Chapter 8</i>	Carrying Capacity <i>Read Chapter 9</i>	Exam 1 Review
	Oct 5, 7	Material Cycles <i>Read chapter 6</i>	Module 1 Exam	No recitation
Module 2: Natural Resources	Oct 12, 14	Guest: Peter Groffman Professor, CUNY Advanced Science Research Center and Brooklyn College Department of Earth and Environmental Sciences Worms Bad / Snow Good	Numbers and the environment <i>Additional readings in Classes</i>	Research Questions and Hypothesis building <i>Assignment 4 due (displaying & interpreting data)</i>
	Oct 19, 21	Biodiversity led by Christopher Ryan <i>Read Chapter 15</i>	Guest: Anna Paltseva Professor of Environmental Sciences at UL Lafayette School of Geosciences Soils <i>Read Chapter 23</i>	Understanding statistical tests <i>Assignment 5 due (research & hypotheses)</i>
	Oct 26, 28	Agriculture <i>Read Chapter 24</i>	Forests <i>Read Chapter 25</i>	No recitation
	Nov 2, 4	Water led by Angelika Winner <i>Read Chapter 18</i>	Guest: Kimberly Carlson NYU Environmental Studies Tropical forest conservation	Exam 2 Review <i>Assignment 6 due (understanding statistical tests)</i>
	Nov 9, 11	Climate Change <i>Read Chapter 16</i>	Module 2 Exam	No recitation
Module 3: Energy, Development, and Impacts	Nov 16, 18	Guest: George Thurston NYU Professor in Environmental and Health Science Air Pollution and Health	Air Pollution & Ozone <i>Read Chapter 19</i>	Air quality <i>No assignment due</i>
	Nov 23, 25	Guest: Jeremy Jackson Professor Emeritus, Scripps Institution of Oceanography Author of 'Breakpoint'	Fossil Fuels <i>Read Chapter 12</i>	No recitation
	Nov 30, Dec 2	Nuclear Energy <i>Read Chapter 13</i>	Renewable Energy <i>Read Chapter 14</i>	Energy scenarios <i>Assignment 7 due (air quality)</i>
	Dec 7, 9	Guest #7	The End <i>Read Chapter 26</i>	Exam Review <i>Assignment 8 due (Mauna Loa and energy scenarios)</i>
	Dec 16	Reading day	Module 3 Exam	

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.

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.

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.