

## ECSC 392 - Modern Climate Seminar

Instructor: Dr Lizz Ultee ([eultee@middlebury.edu](mailto:eultee@middlebury.edu))  
Office: 415 McCardell Bicentennial Hall  
Office Hours: 11am-12pm Mo, 1-2pm Tu, or by appointment

### Course description:

An advanced seminar for students with prior work in physical science of Earth's climate. We will survey current climate change research by reading, discussing, and writing about scientific literature. Assessment reports such as the US National Climate Assessment will form the foundation of our discussions. At the conclusion of this course, students should be able to (1) read scientific papers, (2) identify key open questions in climate science research, and (3) relate scientific findings to common societal questions about climate action.



### Objectives:

At the conclusion of this course, you will be able to

- Report the state of the science for at least one climate domain included in the National Climate Assessment;
- Search, access, and summarize articles from the primary scientific literature; and
- Identify relevant information for a climate decision-making process.

Our work together will help you develop skills including

- Synthesis of information from wide-ranging sources,
- Metacognition (thinking about thinking), and
- Navigating the scholarly literature.

### Resources:

We will draw on three principal types of resources:

- The US 4th National Climate Assessment (“NCA” in schedule below), available online
- Gala cases (“[title] case” in schedule below), deployed on [learn gala.com](http://learn gala.com)
- Scientific articles accessible online

You do not need to purchase a textbook, and you should not pay for access to scientific articles from journal websites. We will navigate digital access to all resources together.

### Final paper:

The major assessment for the course will be a final paper synthesizing results from the literature to address a decision-relevant question. You will be asked to choose your own question, develop your research approach, and summarize your results in a short paper (~5 pages). Your topic proposal will be due Mar 17, a draft to be workshopped April 7, and the final paper May 9. I will provide written feedback and be available for meetings to support your progress. We will make time to discuss your findings in the final class.

**Take-home midterm:**

I will assign a timed (two-hour) midterm due in Week 6. The midterm should approximate the real-world task of trying to efficiently find and make sense of information to address a practical question. It will test the skills we practice during the first half of the semester: searching the literature, skimming scientific papers, and synthesizing results.

**Topic presentation:**

At least once during the semester, you will sign up to present on the week's National Climate Assessment reading assignment. Each presentation will address one of the "Key Points" highlighted in the NCA chapter. Your preparation will be to identify and read 2-3 pieces of primary literature that informed that key point, and be ready to share (1) the overarching conclusion as well as (2) how the primary literature informed it.

**Reading responses:**

On the Tuesday *before* each class session, I will ask you to submit a short written response to the week's reading. This is intended to help you concretize some thoughts before the discussion, and will help me see common themes in your thinking. Each response should be a few paragraphs total in response to two or three guiding questions.

**Assessment and grading:**

We will use frequent check-ins, not all of which will be graded, to gauge progress and evolving needs. Example assessments could include

- Short in-class writing assignments ("minute papers"),
- Group exercises and brief presentations,
- Reading responses,
- A timed midterm, and
- Reflective writing.

Your course mark will be assigned according to the weighting and ranges listed below.

<b>40%</b> Final research project
<b>20%</b> Midterm (timed, take-home)
<b>20%</b> Reading responses (weekly)
<b>10%</b> Topic presentation
<b>10%</b> Class participation & in-class activities

Course mark	Numerical range
<b>A</b>	93-100
<b>A-</b>	90-92
<b>B+</b>	87-89
<b>B</b>	83-86
<b>B-</b>	80-82
<b>C+</b>	77-79
<b>C</b>	73-76
<b>C-</b>	68-72
<b>D</b>	55-67
<b>F</b>	<55

## Course schedule:

Below is a course schedule, subject to adjustments according to our class needs and wants. Most course readings will have a reading response assignment on Canvas. It is essential to do the assigned preparation, as we will spend class time building on these resources.

**Dates** - Topics - [Class preparation](#) - [Assignments](#)

**Week 1, 13-18 Feb [VIA ZOOM]:** Preliminaries - learning agreements, course logistics, getting to know the National Climate Assessment. [NCA Vol 1, Ch 3-4](#). [Learning agreement](#).

**Week 2, 20-25 Feb:** Climate modelling; detection & attribution of change; how to do a deep read. [NCA Ch 3-4](#). [Reading response 1](#).

**Week 3, 27 Feb-3 Mar:** Temperature change & precipitation change in the US; how to skim a scientific paper. [NCA Ch 6-7](#). [Reading response 2](#).

**Week 4, 6-10 Mar:** Droughts, floods, wildfires, and extreme storms; directed literature search (physical sci). [NCA Ch 8-9](#). [Reading response 3](#).

**Week 5, 13-17 Mar:** Arctic change; sea-level rise; novel literature search (physical sci). [NCA Ch 11-12](#). [Reading response 4](#) & [Final paper proposal](#).

## SPRING BREAK.

**Week 6, 27-31 Mar:** Climate adaptation overview; getting to know NCA Volume II. [Take-home midterm](#).

**Week 7, 3-7 Apr:** Community adaptation; directed literature search (social sci). [“Growing into an Uncertain Future” case](#). [Reading response 5](#).

**Week 8, 10-14 Apr:** Regional climate impacts & adaptation; final paper workshop. [NCA Vol II Ch 18](#). [Reading response 6](#) & [Final paper draft](#).

**Week 9, 17-21 Apr:** National adaptation planning; novel literature search (adaptation). [“National Climate Adaptation Plans” case](#). [Reading response 7](#).

**Week 10, 24-28 Apr:** Climate mitigation. [NCA Vol II Ch 29](#). [Reading response 8](#).

**Week 11, 1-5 May:** Climate information in policy-making. [“Great Lakes Climate Adaptation Network” case](#). [Reading response 9](#).

**Week 12, 8-12 May:** Flex time — accommodating cancellations, student-requested topics, discussion of final project findings. [TBD](#). [Final paper](#).

## **Policies & resources**

### **What to bring to class**

A notebook, pen, and laptop. In-class activities will often ask you to write things down. We will also actively search for literature together, and it is probably easiest for you to use your own laptop.

### **How to participate in class**

There are lots of ways to be an active participant in class. Here are some options for how you can participate, according to what best suits your style:

- Sharing your ideas and questions with the class
- Making space for others to contribute to class discussions
- Submitting ungraded assignments and activity sheets in class
- Posting thoughtful questions and comments in our online spaces (Canvas Discussions etc.)
- Responding promptly if I email you about class business
- Discussing course material with friends and family outside of class hours
- Attending office hours

### **Honor Code**

I am required to remind you that this course is subject to the Undergraduate Honor System ([go.middlebury.edu/honorcode](http://go.middlebury.edu/honorcode)). Plagiarism, cheating, duplication of work, and falsifying data are all prohibited under the Code. I do encourage you to consult the course materials and the scientific literature to inform your work; simply ensure you cite as required by the Code. I tend to use APA style citation, but I'm not too picky. If you are confused about a point relating to the Honor Code, including any troubles with attribution, please come and talk to me.

### **Late work**

Some assignments, such as reading responses or completing an in-class writing exercise, are very specific to what we're doing in class on a given day, so it doesn't really make sense to turn them in late. In-class activities cannot be turned in late. Reading responses can be turned in until the morning of the day we discuss them, but they will burn days from your late budget (see below).

For bigger assignments, such as your final project milestones, I would like to have everyone's work as close to the deadline as possible so that I can return it to you with feedback as fast as possible. Plus, when you hand things in on time, you can move on to handling other important things in your life.

You will start the semester with a budget of 5 free late days, to be used across the semester, on all deliverables. After all late days are used up, further late submissions will incur a penalty of 10% per day. If you know you need to use up lots of late days, get in touch and we can discuss a plan.

### **Extra credit**

In the interest of an equitable grading approach for everyone in class, I don't give individual opportunities for extra credit. Sometimes, really cool and unexpected events that relate directly to our course will come up in the middle of the semester. In that case, I might entice you to participate in those events by announcing an extra credit opportunity to the whole class. In general, if you are worried about your course mark, please get in touch with me to make a plan.

### **Attendance**

It is my goal to provide you with an excellent learning environment in class. I hope you will attend every class in order to benefit from that environment. Our class is also very small and depends on everyone's input! **Let's discuss plans for missed classes on the first day of class.**

### **Communication expectations**

Cultivating a healthy work-life balance helps me keep doing work I love for the long term. I encourage you to consciously create your best schedule as well. Part of that, for me, means not checking email outside of College business hours. That means that it might take up to 36 hours (or more on the weekend) to get a response to an email you send me. If you really need a faster response, the best thing to do is to stop by my office (MBH 415). You can also try sending an email with [URGENT] in the subject line. The best time to discuss course questions is during office hours or a scheduled appointment.

### **Extenuating circumstances**

Life happens. There are lots of circumstances that can make it hard to learn: food insecurity, health concerns, and family crises, to name just a few. If you are struggling, please do reach out to me, your student life Dean, or to another trusted advisor on campus so that we can connect you with resources to support you. I will do what I can to ensure you have what you need and can focus on learning.

### **Mental health services**

I encourage you to seek help anytime you need it. The office of Health and Wellness can provide free and confidential mental health evaluations, urgent care, group therapy, medication management, and referrals to off-campus providers. This year, Middlebury Counseling is prioritizing as-needed services, in many cases offering appointments on the same day they're requested. I am not a qualified mental health provider, but I can direct you to additional resources on or off campus as needed.

### **Accommodations and adjustments**

I am committed to fostering an inclusive and encouraging classroom environment. Please come to me any time to discuss things I could start, stop, or continue doing to promote inclusion. In addition, if you have a Letter of Accommodation, please contact me as early in the semester as possible to ensure that we can implement the necessary accommodations in a timely fashion. For eligible students without current Letters of Accommodation, assistance is available through the Disability Resource Center (DRC). Please contact ADA Coordinators Jodi Litchfield and

Peter Ploegman of the DRC at [ada@middlebury.edu](mailto:ada@middlebury.edu) for more information. All discussions will remain confidential.

### **Library helpdesk**

Libraries are amazing. Librarians are information wizards. Did you know that every department at the College has a specialist librarian to help researchers find information they need? The College libraries have a number of tools you may like to explore, but for general inquiries, you can navigate to the library homepage ([go.middlebury.edu/library](http://go.middlebury.edu/library)) and click “Chat with a Librarian”. During business hours, someone will respond to you via text chat; outside business hours, your message will be sent to an inbox and handled when the librarians return. No need to even leave the house!