

## Science for a Sustainable Future (ENVI 194-01)

Macalester College – Spring 2021

**Class meetings:** M-F 9.30 – 10.45

**Instructor:** Louisa Bradtmiller

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Office hours: most T/R 9.30 – 10.45, or by appointment

**Preceptor:** Miranda Moulis

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Office hours: TBD

### COVID Caveat

This module will be yet another atypical learning experience for most of us. Those of us who were enrolled in or teaching courses in the spring or fall got a taste of what lies ahead. The compressed schedule and remote nature of the course provide challenges and opportunities for students and faculty alike. I am committed to making this the best remotely-taught 7.5 week course on science and sustainability possible. To that end, I have changed many things about the way I normally teach, and I am prepared to be flexible as the module progresses. I will work with you if problems arise, and support each of you as people and students to the best of my ability. If your needs exceed my ability to help, I promise to connect you with someone who can. I also ask for your patience and good will as I continue to adjust to new pedagogies and technologies. Please foreground your health, take care of yourselves, and let me know as soon as possible if something is impeding your learning in this class.

### Course description

In 2015 nearly two hundred countries adopted the UN Sustainable Development Goals, described as “the world’s shared plan to end extreme poverty, reduce inequality, and protect the planet by 2030.” This course will examine three of these goals – Zero Hunger, Climate Action, and Clean Water and Sanitation – through a scientific lens as well as within the broader context of social, human, economic and environmental sustainability. We will examine the ways in which science can help to identify both problems and solutions to these pressing problems, and we will also acknowledge and explore the ways in which these goals demand a multidisciplinary approach.

### Goals for students

By the end of this course, students should be able to demonstrate the ability to:

- Describe several frameworks for defining and thinking about sustainability
- Identify ways in which science contributes toward the Sustainable Development Goals
- Communicate clearly and effectively through written and oral presentations of ideas
- Use a multidisciplinary framework to evaluate science-based sustainability initiatives

### Course organization

Class periods will be a mixture of lecture, discussion and group exercises. The latter two will count towards the course participation grade (see below). We will typically have three synchronous class days per week, and two asynchronous days. I will deliver introductory material via asynchronous video and/or through readings, and use class time for more active

learning. Unless you are in a time zone where it is late night or very early morning during class time, I assume that you will participate in synchronous class sessions. If you are in a time zone that makes synchronous participation impossible, please contact me now to discuss strategy.

### *What to expect in class*

#### **Moodle**

The class Moodle page will be updated regularly, and should be your first stop for information about readings, assignments, and what to expect in class on any given day. All readings will be posted to Moodle; there is no textbook for this class. Assignments and readings listed are due by the start of class on the day they are listed, unless otherwise noted. All work in this class will be turned in via Moodle, so be sure to look ahead to see what's coming up.

#### **Attendance and participation**

In addition to regularly attending and working actively with classmates in live sessions, students will occasionally be responsible for leading a short discussion or making a short presentation. I also expect you to make positive contributions to the intellectual community of the course more regularly, which might include active participation in breakout room/small group discussions, asking and/or answering questions in larger discussions, listening and responding respectfully to others' ideas, and coming to class fully prepared. At the end of the course I will ask you to provide me with a short written evaluation of your own participation with respect to these general criteria and assign yourself a grade. As long as it is broadly consistent with my observations of your work, that will be your participation grade for the course.

#### **Speaker summaries and reflection**

I ask that you "attend" three ~hour-long talks this semester, related to any aspect of sustainability. I will provide plenty of suggestions for talks, and you are welcome to find your own as well. Previously recorded lectures are ok provided that they are relatively recent (let's say recorded in 2020/21). For each talk, turn in a document that answers the following:

- 1) What was the talk about? Summarize the main points, and include details about parts you found especially confusing/interesting/motivating. Be sure to include the speaker's name, talk title, and date you attended.
- 2) How does the talk connect with our work in this class? Find as many ways as possible to connect the speaker's work with topics or ideas we have touched on.
- 3) How did the talk make you feel? This is a chance for me to hear a little bit about how you're doing during an unusual semester, framed through the lens of this topic.

The total document length for each should be between 500 – 750 words. You can turn these in at any time, but they will be less stressful if you space them out (and more helpful to me since I'll get to hear about how you're doing!).

#### **Reading Responses**

You will be assigned reading responses for 10 of the course readings (indicated on Moodle). These will typically be 2-3 questions, meant to be answered in a few sentences each. Reading

responses will be graded on a check-plus/check/check-minus scale. Hand in each reading response on Moodle by **9:15am** on the day for which the reading is assigned.

### **Papers and projects**

You will write three papers in this course. The first (**Sustainability paper**) will ask you to think about the role of science in the larger context of sustainability (500 – 750 words). The second is a chance for you to apply our framework of sustainability to a science-driven project (either ongoing or proposed) related to either climate action, hunger, or clean water. You will be asked to describe the project, explain relevant scientific concepts, and then **evaluate the project** within the larger context of sustainable principles (1000 – 1250 words). Your final project will be a team effort to **propose** a science-based sustainability effort in a setting of your choosing. You must choose a different topic than you chose for your individual paper. This could take the form of a written proposal, or might include less written material combined with graphic or multimedia information. More specific assignment descriptions will be discussed in class, and posted to Moodle well in advance of each due date.

### **Late work**

Some of the work in this class (e.g. reading responses) needs to be turned in when assigned in order to be useful to your learning. Due to the nature of remote, compressed learning during a pandemic, I am willing to be flexible with other deadlines *if needed*. Please try to turn things in when assigned, and email me if you realize you'll need an extra day.

### **Grading**

Your final grade for this course will be determined by the number of points you accumulate throughout the semester. I use a typical grading scale: An A is 93-100%; A- 90-92.999%, B+ 87-89.999; B 83-86.999; etc.

Point distribution	
Participation	40
Sustainability paper	50
Project evaluation	100
Project proposal	100
Reading responses (10 @ 5 points each)	50
Speaker reflections (3 @ 20 points each)	60
TOTAL	400

### **Other important information**

#### **Diversity**

It is my intent that students from diverse backgrounds and perspectives be well served by this course, that students' learning needs are addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. I am committed to presenting materials and activities that are respectful of diversity: gender,

sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. I appreciate your feedback on this and every aspect of our course, and your suggestions for ways to improve the effectiveness of the course for you personally or for other students or student groups.

### **Health and wellbeing**

I encourage you to be intentional about maintaining your physical and mental health during every semester at Macalester, but especially this one. Taking care of yourself in these ways will help you to be healthier, happier, and better able to focus on your academic work. It will also keep us safer as a community. Be aware of people, situations and circumstances that help you to feel focused and engaged, as well as those that cause you stress; try to maximize the former, and eliminate the latter as much as possible. While every person is different, for most of us regular and adequate sleep, healthy meals, regular exercise, and connecting with others are all ways to foster wellness. If you find that you are having trouble maintaining your health and wellbeing, please don't hesitate to set up a time to talk with me, or with one of the many individuals or programs in the Hamre Center for Health and Wellness.

### **Accommodations**

Your experience in this class is important to me, and I am committed to creating an inclusive and accessible learning environment. If you have already established accommodations with the Disability Services office, please communicate your approved accommodations to me as soon as possible so that we can discuss your needs in this course. If you have not yet established accommodations, but have a temporary health condition or permanent disability that requires accommodations (this includes but is not limited to: mental health, attention-related, learning, vision, hearing, physical or health impacts), please contact Disability Services to make an appointment: [disabilityservices@macalester.edu](mailto:disabilityservices@macalester.edu) or 651-696-6974. Disability Services offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s), and the Disability Services staff.

### **Academic integrity**

I take all instances of cheating and plagiarism very seriously. It is *your responsibility* to become familiar with Macalester's policies on what constitutes each of these offenses and to behave accordingly. Instances of suspected academic dishonesty will be handled as outlined in college policies. <http://www.macalester.edu/academicprograms/integrity.html>

### **Recording policy**

In order to accommodate students who will not be able to attend synchronous class meetings during this module, I plan to record our synchronous class sessions in a manner consistent with [Macalester's classroom recording policy](#). I will share these recordings on Moodle. If you download any class recordings, you must store them in a password-protected file or on a password-protected site. Please note that the recording policy clearly states that ***students may not share, replicate, or publish any class recording, in whole or in part, or use any of the recordings for any purpose besides knowing what happened during the class period, without my written approval.***