

# Global Change Biology

BIO/ENVI 394 Fall 2020/Mod2 MACALESTER COLLEGE

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Student Hours: Wednesday 12-1 PM

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Student Hours: Tuesday 3-4 PM

## **COURSE INFORMATION**

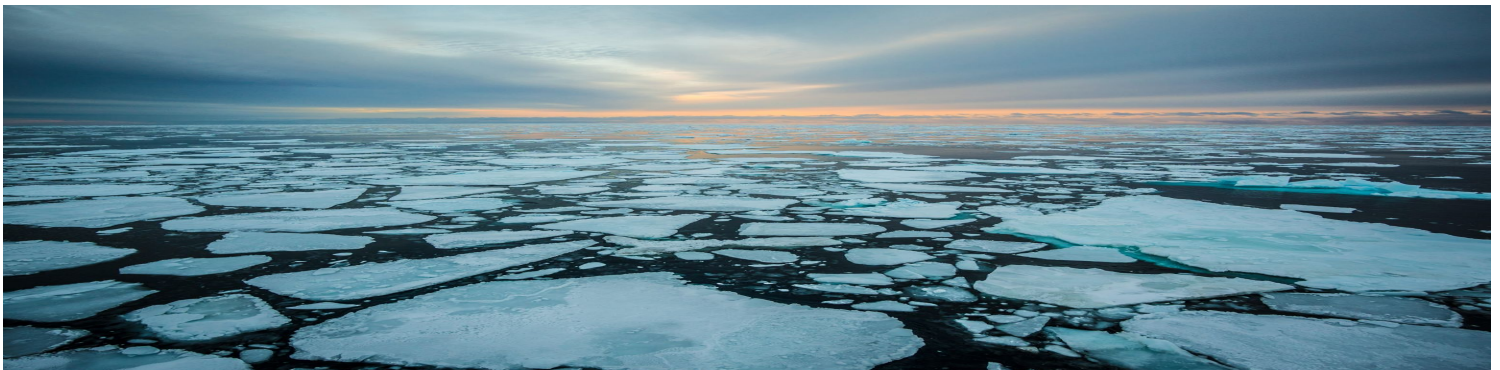
Class Block: 1:45-3 PM M-F

## **COURSE OVERVIEW**

Global change – or planetary-level changes to land, oceans, and the atmosphere – is one of the most critical societal challenges of the 21st century. This course will emphasize the 'global' part of global change, with a strong interdisciplinary link to environmental justice issues throughout. We will work through different global change “units” that look at climate change, land use change, biodiversity loss, and environmental health, with units focusing on different regions of the planet and equitable solutions to those problems. This course emphasizes science communication to different audiences through an array of formats. We aim to focus on environmental problems and solutions on a changing planet while pointing a spotlight at regions that will be impacted first and most severely by global change.

## **MATERIALS**

- There is no textbook.
- Primary literature, popular science articles, and media will be made available on Moodle.
- Meetings will be held synchronously via Zoom
- Asynchronous lectures will be available on Moodle via VoiceThread



## OUR LEARNING GOALS

- Work productively in small groups and create supportive, effective communities based on open communication, engagement, and sharing of responsibilities.
- Present information confidently and effectively through varied science communication formats
- Identify topics in global change biology to expand on through individual projects
- Be able to teach new content learned in class to peers and non-peers.
- Connect and synthesize content and ideas.
- Engage in and help develop a collaborative, supportive learning environment.
- Read and critically synthesize and evaluate primary literature
- Create a novel Wikipedia entry on a scientist who represents a background/identity that has been historically excluded from science
- Create a collaborative document outlining steps to create and maintain anti-racist STEM classes at Mac
- Learn, have fun, support each other and make it through Mod2!

## COURSE ASSESSMENTS / GRADING

| Assessment  | Due                                  | Points                 | % |
|---|--------------------------------------|------------------------|---|
| Science Communication Project (4 total)           | 1 / Unit, due at the end of the unit | 50 each pt (200 total) |   |
| Includes: Process, Message Box, and Media/Project |                                      |                        |   |
| Wikipedia Entry                                   | TBD, at the end of the term          | 100 pt                 |   |
| Wikipedia presentation                            | TBD, at the end of the term          | 30 pt                  |   |
| Day 3 DataSheet                                   | 1/Unit                               | 5 pt each (20 total)   |   |
| Day 4 SciComm Check In                            | 1/Unit                               | 5 pt each (20 total)   |   |
| Day 6 Discussion Summary                          | 1/Unit                               | 5 pt each (20 total)   |   |
| Whole class Anti-Racist Treatise/Statement        |                                      | TBD                    |   |
|   |                                      | <b>Total pts: 350</b>  |   |

## CLASS NORMS

### **Minute Mingle!**

At the start of each synchronous class, we will meet each other in random Breakout rooms of 2-3. This is your chance to listen and learn about your peers and discuss silly topics.

### **Office/Student Hours and supporting each other's learning**

You are busy with activities, clubs, jobs, family and friend responsibilities, and figuring out who you are and what you want to be. We expect you all to be respectful, and kind to each other and use this course as an opportunity to model best practices of student interactions. We want to make sure we are able to support your learning, especially during a challenging semester, in a pandemic, in a Module. Please check in with Christine, Mary, and Phoebe to chat during student hours or by appointment.

### **Out of class work expectations**

Readings and daily assignments should take ~1+ hrs. Longer assignments like SciComm media will require more time to be scheduled. If you are having trouble due to work or class scheduling conflicts, let us know as soon as possible. ***We are especially mindful of how the pandemic has impacted our lives, and the expectation is to extend grace and generosity to everyone.***

### **Developing your voice in science**

Science requires a balance of courage and humility – this is as true for undergraduates as it is for researchers at leading institutions. You need courage and confidence to pursue and develop new ideas and approaches, confidence to critique others' ideas, confidence to follow your curiosity. But science also requires humility – identifying limitations, asking for advice, help and guidance, accepting appropriate criticism from others, and reflecting on potential improvement. Science is a process of realizing you don't have all the answers, seeking information from other sources, and developing new questions to build on existing experience.

## COURSE ENVIRONMENT AND RESOURCES

**Learning environment and inclusivity.** Our goal is to promote an inclusive learning environment where diverse perspectives are recognized, respected, and contribute to our strength as a class. If something in or about this class makes you feel unwelcome, please see us, a TA, or a college administrator who you feel comfortable talking with. A major outcome of this class is a class-wide Anti-Racist discussion and product on how to structure STEM courses to promote anti-racism.

**Names and pronouns.** You should be addressed in the manner that you prefer. If you want to make sure we address you with a particular name and/or pronoun please let me know through the pre-class survey.

**Title IX.** Macalester College is committed to providing a *safe learning environment* for all students that is free of discrimination, sexual harassment, sexual assault, domestic violence, dating violence, and stalking. Further details

are explained in the college's Title IX regulations (<https://www.macalester.edu/titleix>). If you, or someone you know, experiences a Title IX violation, know that Macalester has staff trained to support you. Macalester faculty members are "responsible employees," which means that if you tell me about a Title IX violation, I must share that information with the Title IX Coordinator. Still, you will control how your case is handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need (Title IX Office, 651-696-6258) including, if you wish, confidential sources on campus who are not subject to the mandatory reporting requirement (see list of "Confidential On-Campus Support" at <https://www.macalester.edu/violenceprevention/support/>).

**Accessibility.** We want all students to have fair and equitable access to the learning opportunities in this course. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or to accurate assessment of achievement, please notify us as soon as possible. Students are also welcome to contact the disability service office to discuss a range of options to removing barriers in the course, including accommodations (contact Disability Services, 651-696-6275 or [disabilityservices@macalester.edu](mailto:disabilityservices@macalester.edu)). Once you have a letter of accommodations, please see me so that we can implement an action plan. Furthermore, we know that at times personal issues, stress, health problems or life circumstances may impact your ability to perform academically. Please contact the Office of Student Affairs at 651-696-6220 ([studentaffairs@macalester.edu](mailto:studentaffairs@macalester.edu)) for support and ask them to get in touch with your instructors.

**Recording policy.** In order to accommodate students who will not be able to attend synchronous class meetings during this module, we plan to record our synchronous class sessions in a manner consistent with Macalester's classroom recording policy. I will share these recordings in a password-protected (and not public) place (ie - on Moodle). If you download any class recordings, you must store them in a password-protected location or on a password-protected site. Please note that the recording policy clearly states that you 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. If we use any recorded content from any of our classes for purposes beyond our class, we will – in accordance with the policy – obtain your written permission to do so.

**Other helpful information to support your experience in the class:**

**Concerns on content or experience in the class** -contact your professors or a TA before/after class; attend office hours (group or solo by appt); email to set up a time to meet over Zoom.

**Need additional writing support** - Check out MAX Center for writing tutors or Works in Progress peer review program

**Are you unable to attend synchronous activities due to an unexpected event (sickness, family issue, schedule)** Contact us or a TA by email as soon as possible to set up a time to talk about options.

**Absence due to religious observance-** Please let me know you will be observing ahead of time, so that you can obtain course materials ahead of the absence.

**Take care of yourself. If you are feeling overwhelmed about the scheduling or pace of this course, please let us know.**

## CLASS SCHEDULE & UNIT OVERVIEW

**Unit Overview** - The course is divided into 4 Units of different overarching themes - Climate Change, Land Use Change, Biodiversity Loss, and Environmental Health. Each unit is ~8 days long and follows the same sequence. The table below provides information of each day 1-8 in a Unit sequence.

|               | <b>D1<br/>Lecture 1</b>   | <b>D2<br/>Sci-Comm<br/>Discussion</b>    | <b>D3<br/>Exploring<br/>Data</b>                                   | <b>D4<br/>Workshop<br/>Day</b>                      | <b>D5<br/>Deeper<br/>Dive</b>        | <b>D6<br/>Literature<br/>Day</b>            | <b>D7<br/>Anti-Racist<br/>/ Workshop<br/>Day</b>                                 | <b>D8<br/>Workshop<br/>Day</b>   |
|---------------|---|--|--|---|--------------------------------------|---|--|--|
| Pre-<br>Class | Review major concepts; Complete any pre-class readings or media | Complete any pre-class readings or media | Overview reading on topic  | Prepare materials to work during classtime          | Complete pre-class readings or media | Read primary lit & pop. sci coverage        | Anti-racist reading; Bring draft of Sci comm project                             | Prep materials for effective work during classtime   |
| Sync<br>Class | Intro Lecture (Guest or CSO+Mary)                               | Sci-Comm (Discuss less academic media)   | Small group activity around primary research articles & their data | Workshop End of Unit Project<br><b><u>ASYNC</u></b> | Deeper Lecture / Guest Speaker       | Small group discussion & Sharing out        | Sci comm peer-review workshop<br><br>AND<br><br>Anti-racist reading & discussion | Wikipedia Workshop<br><br>OR<br><br>Workshop day for the sci comm project for that unit<br><br><b><u>ASYNC (except Unit 1)</u></b> |
| Due           | None  | None                                     | DataSheet (as a group)   | Turn in Topic & Medium choice                       | None                                 | Turn in write up of discussion (as a group) | None   | Some benchmark   |

**Module Overview** - This provides information on what we cover for each unit on what date.

*We expect the schedule to be somewhat dynamic as we navigate the mod in collaboration with you. Please see the moodle for the most up-to-date information.*

CC: Unit 1 on Climate Change; LUC: Unit 2 on Land Use Change; BL: Unit 3 on Biodiversity Loss; EH: Unit 4 on Environmental Health

| Dates                    | Monday   | Tuesday  | Wednesday  | Thursday  | Friday  |
|--------------------------|--|--|--|---|---|
| Week 1:<br>10/28 - 10/30 | FALL   | BREAK  | Introductions and Syllabus<br>CC:D1<br>*SciComm examples on GCB topics<br>*What makes good SciComm | CC:D2<br><br>SciComm Day<br><br>*MiniLecture on CC, Range Shifts, and Phenology | CC:D3<br>Data sheet on Range Shifts   |
| Week 2:<br>11/2 - 11/6   | CC:D4<br><br>Angelica Patterson guest lecture on CC, Migrating trees, sci comm and inclusion | CC:D5<br><br>NO CLASS FOR ELECTION DAY<br><br>Workshop day for sci comm <b>(async)</b> | CC:D6<br><br>Peer-reviewed lit discussion  | CC:D7<br><br>Peer-review feedback sci comm workshop & anti-racist discussion    | CC:D8<br><br>Wikipedia spin up guest lecture<br><br><b>(normally async, this unit sync)</b> |
| Week 3:<br>11/9 - 11/13  | LUC:D1<br><br>Lecture on Land Use Change in Global Tropics                                   | LUC:D2<br><br>SciComm Day  | LUC:D3<br><br>Data Sheet   | LUC:D4<br><br><b>Async</b><br>Workshop Day                                      | LUC:D5<br><br>Deeper Dive Guest lecture   |
| Week 4:<br>11/16 - 11/20 | LUC:D6<br><br>Peer-reviewed lit discussion (Clark et al. 2020)                               | LUC:D7<br><br>Peer-review feedback sci comm workshop & Anti-Racist discussion          | LUC:D8<br><br><b>Mid-Course Interview</b>  | BL:D1<br><br>Wikipedia Workshop<br><br><b>Async</b>                             | BL:D2<br><br>SciComm Day  |
| Week 5:<br>11/23 - 11/27 | BL:D3<br><br>Lecture on Biodiversity Loss<br><br>Data Sheet                                  | BL:D4<br><br>Prof. Danielle Ignace guest lecture                                       | BL:D5<br><br><b>Async</b><br>Workshop Day  | No Class:<br>THANKSGIVING BREAK   |   |
| Week 6:<br>11/30 - 12/4  | BL:D6<br><br>Peer-reviewed lit discussion  | BL:D7<br><br>Peer-review feedback sci comm workshop                                    | BL:D8<br><br>Wikipedia Workshop  | EH:D1<br><br>Lecture on Environmental Health                                    | EH:D2<br><br>SciComm Day  |

|                                     |  |  |   |  |  |
|-------------------------------------|--|--|---|--|--|
|                                     |  | & Anti-Racist discussion                                     | <b>Async</b>                                |  |  |
| Week 7:<br>12/7 - 12/11             | EH:D3<br><br>Data Sheet                                | EH:D4<br><br><b>Async</b><br>Workshop Day                    | EH:D5<br><br>Deeper Dive /<br>Guest Lecture | EH:D6<br><br>Peer-reviewed lit<br>discussion | EH:D7<br><br>Peer-review<br>feedback sci<br>comm workshop<br>& Anti-Racist<br>discussion |
| Week 8:<br>12/14 - 12/18<br>Wrap-Up | EH:D8<br><br>Wikipedia<br>Workshop<br><br><b>Async</b> | Wrap-Up!<br>Wikipedia &<br>SciComm<br>Presentation<br>Party! | STUDY DAY<br><br>Spill over if<br>needed    | FINALS                                       | FINALS   |