

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	
		Total pts: 350	

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). 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) 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.

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

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