

ERS 100

Foundations: Environment, Resources and Sustainability

School of Environment, Resources and Sustainability University of Waterloo Fall 2020

Instructor Information

Instructor: Dr. Andrea M. Collins

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Live Q&A: Thursdays, 2 p.m. – 3 p.m. Eastern Time

Teaching Assistants:

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Note: Given our various responsibilities, your professor and TAs are not always able to answer emails immediately. Anticipate hearing back from us within 1-2 business days (Monday-Friday) of sending your initial email. All emails regarding ERS 100 should include the course code in the subject line, for instance: “ERS 100: Question about Week 10 reading”. If you email us using LEARN, the course code is automatically added to the subject line.

Prof. Collins is also available every week for a **live Q&A** that will be recorded and posted for the rest of the class. The first few minutes will be dedicated to course updates and questions emailed in advance. So, if you are not comfortable with participating in the live Q&A or unable to participate for any reason, you can email your questions in advance.

Course Description

This course provides foundations for studying in the School of Environment, Resources and Sustainability. The course emphasizes the need to understand how we can use social, natural, and physical sciences to understand and solve environmental and resource problems in sustainable ways. The course also considers the limitations of approaches that perceive and attempt to manage issues as isolated phenomena. We will learn how to recognize the broader context around environment and resource issues and examine the roots of our problems within and ecological, political, social, and economic systems.

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

- Define foundational concepts for studying in SERS, including systems and sustainability
- Identify links between the social and ecological aspects of environmental problems, locally and globally

- Evaluate sources of information, including mainstream media sources and peer reviewed journals, to develop information literacy and critical thinking skills
- Identify the strengths of different kinds of data collection and analytical approaches for environmental problem-solving
- Examine and evaluate research about complex environmental problems

Required Texts

- **Weekly required readings** available on LEARN.
- **One (1) book** for review, selected from the following list. **Please do not buy all of these books. Only select one book to complete your Book Review:**
 - Dan Barber, *The Third Plate: Field Notes on the Future of Food* (2014)
 - Marla Cone, *Silent Snow: The Slow Poisoning of the Arctic* (2006)
 - Robin Wall Kimmerer, *Braiding Sweetgrass* (2013)
 - Elizabeth Kolbert, *The Sixth Extinction* (2015)
 - Annie Leonard, *The Story of Stuff: The Impact of Overconsumption on the Planet, Our Communities, and Our Health-And How We Can Make It Better* (2006)
 - Jonathan Safran Foer, *Eating Animals* (2010)

All of these books are available as e-Books. They are also available through the UW Bookstore, the UW Library, local bookstores, and/or online sellers.

Course Requirements and Assessment

Assessment	Date of Evaluation	Weighting
Online Discussion	Weeks 1 – 11	10%
Concept Map & Description	Mon., Oct. 5	5%
Open Book Mid-Term Quiz	Tues. Oct. 20 – Thurs. Oct. 22 • Choose a 3 hour block	20%
Book Review Essay	Monday, Nov. 23 rd	30%
Self-Evaluation	Monday, Dec. 7 th – Classes End	10%
Final Take Home Exam	Monday, Dec. 14 th	25%

Online Discussions – 10%

You are assigned to a discussion group of 10 ERS 100 students with whom you will interact each week. Discussion boards will open every Tuesday. To keep up with the class, be sure to post before the next board opens. Each week, you will need to post to the weekly discussion boards. To earn points, you will need to post a minimum of three times. Instructions for each week will

vary, but typically this will entail one original post from you and two responses to other students.

There are 20 points available to be earned over the course of the term.

- Posting at least 3 comments per week (follow the weekly instructions) = 1 point.
- Quality of Posts/Responses = 1 point

Be sure to post on a weekly basis to earn full points, but don't worry if you miss a week - there are 11 weeks where you can earn points, but you only need to post in 10 weeks to earn all 20 points. At the end of the term, your total number of points will be calculated to give you a score out of 10. You will not be able to earn a score higher than 10/10.

Do note that the online discussion forums are not anonymous. You should only write things that you would feel comfortable saying to someone else in person. UWaterloo's academic integrity policies also apply in the Forums, which means not only that you should provide credit for words and ideas that are not yours, but also that you should act ethically and appropriately. Refer to [Policy 71](#) for the details.

Self-Evaluation – 10% - Due Monday, December 7th by 11:59 p.m. EST

At the end of the term, you will write and submit a 300-500 word self-evaluation of your online participation in the course, including **a score for yourself out of 10**. This self-evaluation should include: three contributions you have made to online discussions in ERS 100 and a discussion of why these represent your best contributions to the class. This discussion might include how specific course lectures and/or readings informed your thinking, how you reflected on what your classmates were saying, how you pushed discussion in a new direction, how something happening outside the course seemed relevant to the online discussions, etc.

See the description in LEARN for more details.

ASSIGNMENTS

Concept Map – 5% - Due Monday, October 5th by 11:59 p.m. EDT

This concept map activity is designed to get you thinking about the interconnections between entities in a system. The idea here is not to create a highly detailed, computer-generated map of everything in a system, but rather to focus on a specific issue, identify a few entities and show how they are interconnected via relationships and/or feedback loops. You will choose a news story about social and ecological challenges from the list provided in LEARN, draw out a system map, and explain the links that you see. Full details and a visual example are on LEARN.

Book Review Essay – 30% - Due Monday November 23rd by 11:59 EST

Popular non-fiction books about social and environmental issues have a tremendous ability to shape people's views on important issues. Books like Rachel Carson's *Silent Spring* are often cited as being instrumental in bringing environmental issues to public attention and driving social and environmental change.

In this assignment, you will choose a book from the list above and write a critical assessment of it based on your new understanding of sustainability and social and ecological systems. Each of the books considers social and ecological problems the world is facing or has faced. Your job is to articulate – in your own words – what the book is about and assess the argument being made. The Book Review should be 1200-1500 words long, double-spaced, written in 12 pt. font. All of the instructions are available on LEARN.

Late Work:

Grace Period: The three written assignment due dates – Concept Map, Book Review Essay, and Self-Evaluation – each have a **3-day grace period** during which time no late penalty will apply. No documentation is required. You are encouraged to submit everything on time in order to keep up with the class, but given the current state of the world, do use these days as needed.

The discussion boards have a 7-day grace period, but after that there will not be an opportunity to add to the weekly discussion, so please do your best to keep up with the material. You will still be able to view discussion boards but will not be able to post.

The Quiz and the Final Exam will not have a grace period, so please complete those on time.

Late Penalty: All written assignments submitted after the grace period will receive an **automatic penalty of 5 percentage points** (out of 100 points available on the assignment) per day, to a maximum 50% penalty. No assignments will be accepted after 14 days past the due date unless you have requested and received an extension from the professor.

Bonus Points:

You may earn **up to 3 additional percentage points** on your final grade for the following activities. Bonus point assignments may be submitted any time between Sept. 8 and Dec. 7 to count towards your final grade. You may only earn each of these points once (e.g. if you send me 4 videos throughout the term, you will still only get 1 point) and you may not duplicate materials other students have submitted (i.e. only the first student to send me a particular clip, podcast or news story will earn the point).

- Send Prof. Collins a link to a video clip or podcast about a topic or concept that relates to the lectures or readings. Please specify which lectures or readings you are referring to and explain the connection you see. If the recording is longer than 5 minutes, please also specify when the connection is made, e.g. “resilience is mentioned around the 6:36 mark” **(1 point)**. Videos that are already assigned in the course will not earn a point.
- Send Prof. Collins a link to a *reputable* news story that either a) conflates correlation and causation in a scientific report OR b) tries to explain to readers that correlation is not causation **(1 point)**.
- Write an original 500 word “blog post” about an environmental issue that you care about using concepts from ERS 100 and email it to Prof. Collins. You do not actually need to post it to the internet to earn the point, but you may if you like **(1 point)**.

I want you to succeed in this course: Starting your university career is both an exciting and a challenging time. Whether you are still at home or living in a new place, there are new rhythms and responsibilities you will need to manage. I have designed this course with lots of flexibility to account for different timelines, locations, and interests, but this may not be enough for you. Please be in touch if you feel you need additional support due to mental or physical illness, safety, or other personal concerns. There is also a list of on-campus and Kitchener-Waterloo-based resources available on LEARN.

Course Outline & Weekly Readings

Week 1 – Welcome to SERS!

Required Reading:

Adams, W.M. 2007. "Thinking like a human: Social science and the two cultures problem." Vol 41(3).

<https://www.cambridge.org/core/journals/oryx/article/editorial/758FE353817FC5BFBCF50E63878B095A/core-reader>

Week 2 - Core Concepts: Sustainability

Required Reading:

Purdy, Jedidiah, "Environmentalism's Racist History," *The New Yorker*. August 13, 2015.
<https://www.newyorker.com/news/news-desk/environmentalisms-racist-history>

Wiek, Arnim, Lauren Withycombe, Charles Redman, and Sarah Banas Mills. "Moving Forward on Competence in Sustainability Research and Problem Solving." *Environment: Science and Policy for Sustainable Development* 53, no. 2 (2011): 3–13.
<https://dx.doi.org/10.1080/00139157.2011.554496>

Week 3 – Core Concepts: Systems & Resilience

Required Reading/Viewing:

Martello, Marybeth Long. (2004). [Global change science and the Arctic citizen](#). *Science and Public Policy* 31(2), 107-115. doi:10.3152/147154304781780082

Marten, Gerry. Ch. 1 Introduction: [What is Human Ecology?](#)

Watt-Cloutier, Sheila. [Human Trauma and Climate Trauma As One](#). TedxYYC. 2016. (15 minute video)

Week 4: Research Questions, Data and Reliable Sources

Required Reading:

Editorial: "Fake News Threatens a Climate Literate World." *Nature Communications* 8, no. 1 (2017): 15460. <https://rdcu.be/b6cpJ>

- There are fewer readings this week because there is a bit more lecture and discussion for you to do. I hope this makes things a bit easier on you this week!

Week 5 – Ecosystems and Biodiversity

Required Reading:

Ellis, Erle C., Kees Klein Goldewijk, Stefan Siebert, Deborah Lightman, and Navin Ramankutty. "Anthropogenic Transformation of the Biomes, 1700 to 2000." *Global Ecology and Biogeography* 19, no. 5 (2010): 589–606. <https://doi-org.proxy.lib.uwaterloo.ca/10.1111/j.1466-8238.2010.00540.x>

- This is a tough reading! Follow the instructions in LEARN and don't worry too much about this one.

Marvier, Michelle, Peter Kareiva and Robert Lalasz. "Conservation for the Anthropocene," *The Breakthrough Institute Journal*, Fall 2011, no. 2. <https://thebreakthrough.org/journal/issue-2/conservation-in-the-anthropocene>

Quentin Wheeler, Antonio G. Valdecasas And Cristina Cánovas. "Evolution doesn't proceed in a straight line – so why draw it that way?", *The Conversation*. <https://theconversation.com/evolution-doesnt-proceed-in-a-straight-line-so-why-draw-it-that-way-109401>

Week 6 – Mid-term Quiz

Mid-term quiz will open on Tuesday, October 20 at 12:00 p.m. noon, EDT and remain open until Thursday, October 22 at 12:00 p.m. noon. The test should only take you 1.5 hours to complete but you will have 3 hours to complete the test once you begin. To ensure you get the full time allotted, be sure to begin at least 3 hours before noon on Wednesday, October 21. If you are in a different time zone, please note the time difference and plan accordingly.

Week 7 – The Economy and the Environment

Required Reading:

Klein, Naomi. "Capitalism vs. The Climate" *The Nation* 11/28/2011, Vol. 293 Issue 22, p11-21. 11p. <https://www.thenation.com/article/capitalism-vs-climate/>

Raworth, Kate. "A Safe and Just Space for Humanity: Can we Live Within the Doughnut?" [Oxfam Discussion Paper](https://oi-files-d8-prod.s3.eu-west-2.amazonaws.com/s3fs-public/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_0_4.pdf), February 2012. https://oi-files-d8-prod.s3.eu-west-2.amazonaws.com/s3fs-public/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_0_4.pdf

Week 8 – Systemic Inequality and the Environment

Required Readings:

Black Lives Matter in ecology and evolution. *Nat Ecol Evol* **4**, 893–894 (2020).
<https://doi.org/10.1038/s41559-020-1250-2>

Owren, Cate, Alexey Milovanov, and Anu Saxena. "Chapter 11: Women and the Environment," in *Global Women's Issues: Women in the World Today, Extended Edition*. Bureau of International Information Programs, United States Department of State, 2012. Access via eCampus Ontario:
<https://ecampusontario.pressbooks.pub/womenintheworld/chapter/chapter-11-women-and-the-environment/>

Suggested Additional Materials:

Graves, J.L. African Americans in evolutionary science: where we have been, and what's next. *Evo Edu Outreach* **12**, 18 (2019). <https://doi.org/10.1186/s12052-019-0110-5>

CBC Quirks and Quarks: Women in Science Special (Radio/Podcast) -
<https://www.cbc.ca/radio/quirks/sep-21-2019-women-in-science-special-how-science-has-done-women-wrong-1.5291077>

Week 9 – Society and the Environment

Required Reading:

O’Riordan, Tim and Susanne Stoll-Kleemann. “The Challenges of Changing Dietary Behavior Toward More Sustainable Consumption.” *Environment: Science and Policy for Sustainable Development* 57, no. 5 (2015): 4–13.
<https://www.tandfonline.com/doi/full/10.1080/00139157.2015.1069093>

Suggested Reading:

Stoll-Kleemann, Susanne and Tim O’Riordan. “The Sustainability Challenges of Our Meat and Dairy Diets.” *Environment: Science and Policy for Sustainable Development* 57, no. 3 (2015): 34–48. <https://www.tandfonline.com/doi/full/10.1080/00139157.2015.1025644>

Week 10 – Global Environmental Politics and Problem-Solving

Required Reading:

Campos-Arceiz, Ahimsa. "Forest elephants are our allies in the fight against climate change, finds research." *The Conversation*, July 16, 2019 <https://theconversation.com/forest-elephants-are-our-allies-in-the-fight-against-climate-change-finds-research-120440>

Hughes, Alice Catherine. "Stop the slaughter of African elephants by banning the ivory trade for good." *The Conversation*, September 28, 2016. <https://theconversation.com/stop-the-slaughter-of-african-elephants-by-banning-the-ivory-trade-for-good-65743>

Week 11 – National Environmental Politics

Required Readings:

Beer, Mitchell. "Climate intensity imperils leaders who don't keep up." *Policy Options*. June 5, 2019. <https://policyoptions.irpp.org/magazines/june-2019/climate-intensity-imperils-leaders-who-dont-keep-up/>

Cutter, Susan L. "The Demise of Environmental Governance." *Environment: Science and Policy for Sustainable Development* 61, no. 4 (2019): 2–3. <https://dx.doi.org/10.1080/00139157.2019.1618644>

Week 12 – Building Sustainable Communities & Conclusion

Required Readings:

Agyeman, Julian and Duncan McLaren. "Sharing Cities." *Environment: Science and Policy for Sustainable Development* 59, no. 3 (2017): 22–27. <https://doi.org/10.1080/00139157.2017.1301168>

Vasic, Jennifer and Tenille Bonogore. "Waterloo should set a new course, based on equity and the environment". *Waterloo Region Record*. April 11, 2019 Thursday. <https://www.therecord.com/opinion-story/9279533-waterloo-should-set-a-new-course-based-on-equity-and-the-environment/>

Information on Plagiarism Detection

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin® in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit the alternate assignment.

Intellectual Property

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#).

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. [Policy 70 - Student Petitions and Grievances, Section 4](#). When in doubt please contact your Undergraduate Advisor for details.

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm. Read: Policy 72 - Student Appeals.

Accommodation for Students with Disabilities

Note for students with disabilities: The AccessAbility Services office, located in Needles Hall Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

Mental Health

The University of Waterloo, the Faculty of Environment and our Departments/Schools consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical and/or emotional. Please note that help is available. Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services <http://www.uwaterloo.ca/counselling-services> is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

Religious Observances:

Students need to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Appeals:

A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground.

Unclaimed assignments:

Unclaimed assignments will be retained for until one month after term grades become official in Quest. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

Communications with Instructor and Teaching Assistants:

All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.