

# ERS 100

## Foundations: Environment, Resources & Sustainability

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School of Environment, Resources & Sustainability (SERS), University of Waterloo  
Fall 2018



### Instructor - Stephen D. Murphy B.Sc. Hons, Ph.D. (Professor and Director of SERS)

Office: EV2 2034

Office Phone: 519-888-4567 ext. 35616

Office Hours: Flexible; I'll post my weekly schedule on LEARN; you can also make an appointment; you can drop by; you can rappel down the wall and knock on my window

Contacts: [stephen.murphy \[at\] uwaterloo.ca](mailto:stephen.murphy@uwaterloo.ca); [@prof\\_smurph](https://twitter.com/prof_smurph); [profsmurph](https://www.instagram.com/profsmurph)

**Email process.** Use your uwaterloo email for best results (UW actually requires that you do for communication with UW personnel). We strive for quick turnarounds - anticipate hearing back from us within 1-1.5 business days (Monday-Friday) of sending your initial email; sometimes this is even faster. All emails regarding ERS 100 should include the course code in the subject line, for instance: "ERS 100: Question about Week 5 reading".

### Course Description

This course provides the theoretical 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. Students will also learn foundational skills for research in SERS, including field research, library research, and evaluating and interpreting data.

## Course Goals and Objectives

- Conduct several types of research at the university level using a variety of on-campus resources
  - Undertake research at the Ecology Lab
  - Use library resources to begin an independent research project
- Understand the complexities of environmental problem-solving
  - Describe the different social and ecological aspects of environmental problems
  - See where different challenges overlap and intersect
- Describe different analytical approaches for defining and addressing environment and resource issues.
  - Understand the strengths of different kinds of data and analytical frameworks
- Explain the importance of a transdisciplinary approach to environmental problem-solving

## Required Texts

- Newcomb's Wildflower Guide, by Lawrence Newcomb – Available in the UW Bookstore
- **One (1) book** for review, selected from the following list:
  - Rachel Carson, *Silent Spring* (1962)
  - Barry Estabrook, *Tomatoland: How Modern Industrial Agriculture Destroyed Our Most Alluring Fruit* (2012)
  - Thomas L. Friedman, *Hot, Flat and Crowded* (2008)
  - Al Gore, *Earth in the Balance: Ecology and the Human Spirit* (1992)
  - Paul Greenberg, *Four Fish: The Future of the Last Wild Food* (2011)
  - Naomi Klein, *This Changes Everything: Capitalism vs. the Climate* (2015)
  - Elizabeth Kolbert, *The Sixth Extinction* (2015).
  - Elizabeth Kolbert, *Field Notes from a Catastrophe: Man, Nature, and Climate Change* (2006)
  - Marla Kone, *Silent Snow: The Slow Poisoning of the Arctic* (2006)
  - 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) [**Note:** the UW Library may have this book listed with a different sub-title, but it is the same book – look for the Story of Stuff by Leonard]
  - Raj Patel, *Stuffed and Starved: The Hidden Battle for the World's Food System* (2008)
  - Fred Pearce, *The Land Grabbers* (2013)
  - Michael Pollan, *The Omnivore's Dilemma* (2007)
  - Jonathan Safran Foer, *Eating Animals* (2010)

You are NOT compelled to buy all of the books. You only need to select ONE book to complete your Book Review. I do encourage reading widely of course. You can often get books second hand or as e-books (kindle or related formats); these are often much less expensive. Note that the publication dates above are the original dates; later versions or editions are also acceptable and several (like Silent Spring) have been reprinted many times so don't worry too much about using different editions – this is a big picture review not a nit-picking exercise.

## 2018 Class Lesson Schedule

Classes are Wednesdays (Except Oct 12<sup>1</sup>) 0830-1020<sup>2</sup> EV3 1408

Tutorials are Thursdays (either 1030-1120 or 1130 or 1220; check your QUEST schedule)

Date	Topic	Readings
September 12	What's SERS All About?	Frankfurt (1986) Adams (2007)
September 19	Nature Matters: Ecological Principles	Murphy (2013) Evans et al. (2016)
September 26	Research Matters: Examples of How Research is Done from a Real Student (Guest: Ph.D. student Michael McTavish)	
October 3	Data & Evidence Matter: Understanding Data and Evidence	Northey et al. (2009) Northey et al. (2012)
<b>October 12 (Class is on Fri)</b>	Ecological Economics	Rockstrom et al (2009)
October 17	Environmental Governance, Policy and Law	Looney (2016) Winfield (2009)
October 24	Complexities of International Environmental Problem-Solving	Pauly et al (2012) Urbina (2015)
October 31	Complexities of Urban Socio-Ecological Action & Planning	Swilling (2016) Taber (2016)
November 7	Incorporating Gender into Environmental Studies	Seager (1993)
November 14	Gaps between Environmental Awareness, Behaviour, and Policies	Kennedy et al (2009)
November 21	Principles of Sustainability and Impact Assessment	Gibson (2005): you only need to read pages 47-65
November 28	What Have We Learned? + Exam Review	Carter (2006), Hu (2013), Bogard & Hoffman (2016)

<sup>1</sup> During fall study break, the classes shift so those of us with class lessons on Wednesday actually shift our classes to Friday of that same week; yes, this is weird - I just work here. **So show up Friday October 12 during this week.**

<sup>2</sup> Ugh. 0830 class. Oh well. Bring coffee or tea or juice for yourselves; I'll supply the entertainment and education.

## Required Readings Available on LEARN (some are links to online resources)

### Sept 12

- Frankfurt, H. (1986) On Bullshit. *Raritan Quarterly Review* 6(2), 61-81.
- Adams, W. M. (2007). Editorial: Thinking like a human. *Oryx*, 41(3), 275-276.  
doi:10.1017/S0030605307004131

### Sept 19

- Murphy, S.D. (2013) *Plus ça change, plus c'est la même chose*. In R. Hobbs, E. Higgs, & C. Hall (Eds.) *Novel Ecosystems* (pp. 150-151). London:Wiley.
- Evans, D.M. et al. (2016). Species Recovery in the United States: Increasing the Effectiveness of the Endangered Species Act. *Issues in Ecology*, 20,1-28.

### Sept 26

- Readings from guest lecturers to be posted later

### Oct 3

- Northey, M., Tepperman, L., and Albanese, P. (2009). "Chapter 4: Using Quantitative Data" in *Making Sense: A Student's Guide to Research and Writing, Social Sciences*. 4th Ed. Don Mills: Oxford University Press, Pg. 57-69.
- Northey, M., Knight, D.B., and Draper, D. (2012). "Chapter 11: Doing Field Work and Writing about It" in *Making Sense: A Student's Guide to Research and Writing, Geography and Environmental Sciences*. 5<sup>th</sup> Ed. Don Mills: Oxford University Press, Pg. 171-183.

### Oct 10

- Rockstrom, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., Foley, J. A. (2009). A safe operating space for humanity. *Nature*, 461(7263), 472-475.  
doi:10.1038/461472a

### Oct 17

- Looney, R. (2016). Democracy Is the Answer to Climate Change. *Foreign Policy*.  
<http://foreignpolicy.com/2016/06/01/democracy-is-the-answer-to-climate-change/>
- Winfield, M. (2009). Policy Instruments in Canadian Environmental Policy. In D. L. VanNijnatten & R. Boardman (Eds.), *Canadian Environmental Policy and Politics: Prospects for Leadership and Innovation*. 3rd Edition (pp. 46-63). Don Mills: Oxford University Press.

### Oct 24

- Pauly, D., Christensen, V., Guenette, S., Pitcher, T. J., Sumaila, U. R., Walters, C. J., Zeller, D. (2002). Towards sustainability in world fisheries. *Nature*, 418(6898), 689-695.  
doi:10.1038/nature01017

- Urbina, I. (2015). 'Sea Slaves': The Human Misery That Feeds Pets and Livestock. Retrieved July 27, 2015 from <http://www.nytimes.com/2015/07/27/world/outlaw-ocean-thailand-fishing-sea-slaves-pets.html? r=0>

### **Oct 31**

- Swilling, M. (2016). The curse of urban sprawl: how cities grow, and why this has to change. *The Guardian (UK)*. Retrieved from <https://www.theguardian.com/cities/2016/jul/12/urban-sprawl-how-cities-grow-change-sustainability-urban-age>
- Taber, J. (2016). Ontario proposes greenbelt expansion as urban growth intensifies. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/news/toronto/ontario-proposes-greenbelt-expansion-as-urban-growth-intensifies/article29972588/>

### **Nov 7**

- Seager, J. (1993). "Introduction: What's the Problem Here?" in *Earth Follies*, (pp. 1-13). Routledge: New York.

### **Nov 14**

- Kennedy, E. H., Beckley, T. M., McFarlane, B. L., & Nadeau, S. (2009). Why We Don't "Walk the Talk": Understanding the Environmental Values/Behavior Gap in Canada. *Human Ecology Review*, 16(2), 151-160.

### **Nov 21**

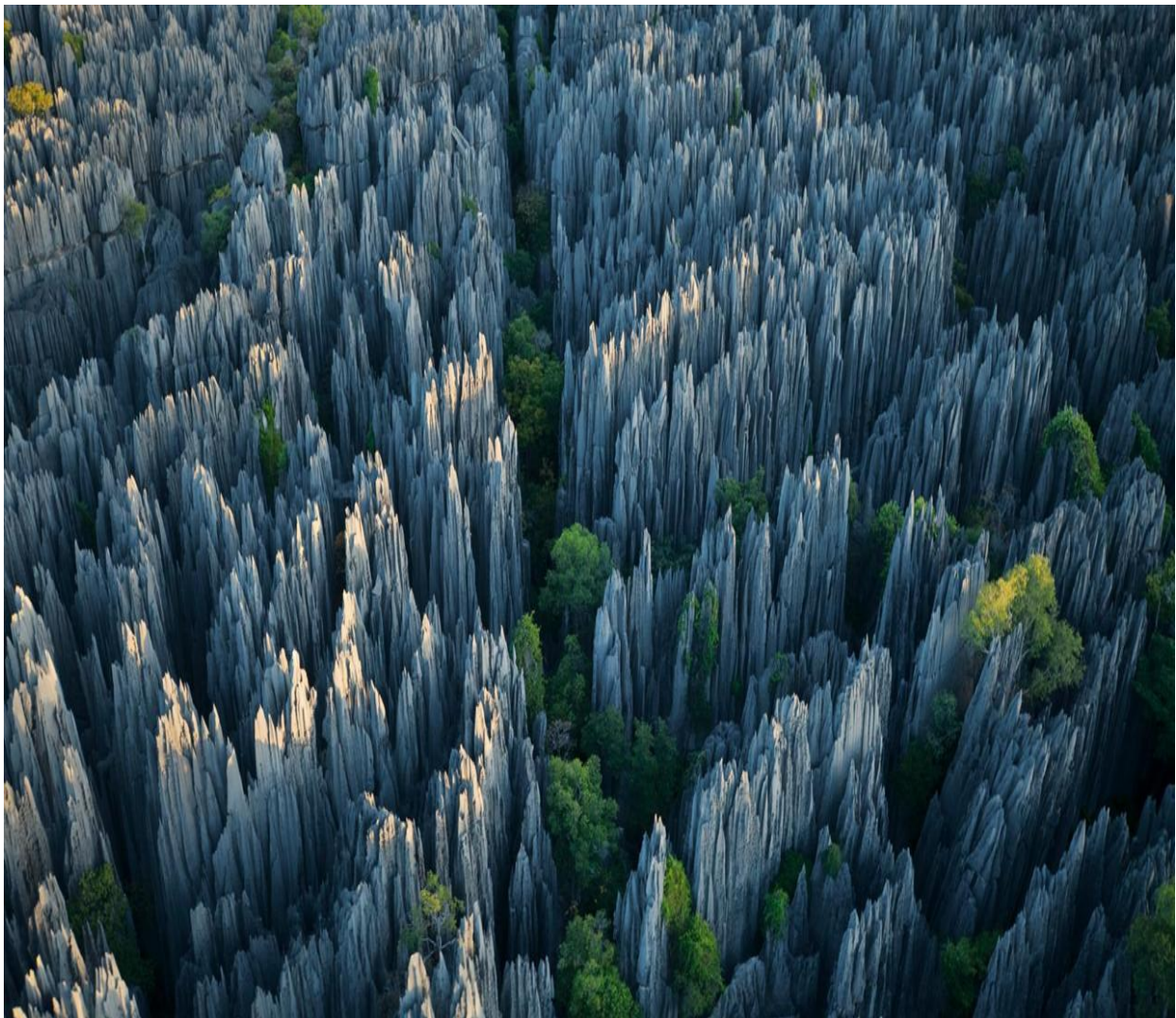
- Gibson, B., with Hassan, S., Holtz, S., Tansey, J., & Whitelaw, G. (2005) "Chapter 3: Sustainability: The essentials of the concept," *Sustainability Assessment: Criteria and Processes*. London: Earthscan.

### **Nov 28**

- Carter, M. (2006). Greening the Ghetto. TED talk. [https://www.ted.com/talks/majora\\_carter\\_s\\_tale\\_of\\_urban\\_renewal](https://www.ted.com/talks/majora_carter_s_tale_of_urban_renewal)
- Hu, W. 2013. <https://www.nytimes.com/2013/04/05/nyregion/a-hero-of-the-bronx-majora-carter-is-now-accused-of-betraying-it.html>
- Bogard, A. & Hoffman, A. (2016). <https://www.forbes.com/sites/bogardandhoffman/2016/11/29/on-resilience-how-majora-carter-risked-it-all-lost-it-all-and-bounced-back/#79cee3b36bdd>

## Assessment of Students

Assessment	Date Due	Weighting
Tutorial Participation	<i>Ongoing</i>	10%
Annotated Bibliography & Brief Report	Due 19 Oct. at 2000 h.	15%
Book Review	Due 21 Nov. at 2000 h.	25%
Final Exam	During Dec. Exam Period (TBA)	50%
Total		100%



Doing assignments and exams can feel like navigating this sort of place  
(this is *Tsingy de Bemaraha* National Park, Madagascar – for those curious)

### **Tutorial Participation – 10%**

Tutorial attendance and participation is critical for developing research skills to do well on your ERS 100 assignments and carry you through the rest of your career at UWaterloo. Students are expected to attend each tutorial ready for that day's task. This includes being prepared for the Ecological Field Study, keeping up with assigned readings, and participating in class discussions and activities. All materials in tutorials are subject to appear on the Final Exam. We DO NOT have tutorials during Week 1 (no tutorials on Sept 6).

### **Tutorials on Ecological Field Study (Sept 13-Oct 18) – see detailed document on LEARN**

- September 13 – Read the documents 2018 ERS 100 Ecological Field Study and Booth et al. (2010) provided in the Tutorial folder on LEARN. Meet your TA in the Ecology Lab (EV1 Room 134); learn how to use the Newcomb's Guide to identify plants.
- September 20 – Meet in the Ecology Lab (EV1 Room 134); practice using the Newcomb's Guide to identify plants; return signed Letter of Understanding.
- September 27 – Meet in the field at your pre-determined site. Identify plants on campus and collect data. Please dress appropriately for the weather. Complete your data sheet and hand it in at the end of the tutorial.
- October 4 – Meet in your tutorials to review and analyze the data you have collected.
- October 11 – No formal tutorial meeting this week (shifted schedule after the fall study break) but continue independently analyzing the data/consider how to report your findings.
- October 18 – Meet in your tutorials as needed to review and analyze data you have collected; group discussions on what the data mean/answering the questions posed

### **Tutorials on Reflecting and Discussing Ideas Big and Small**

- October 25 – Search the web and bring an example to tutorial; each student should be prepared to deliver a 2 minute elevator speech on a case study in International Environment and Resources Problem Solving.
- November 1 – Search the web and bring an example to tutorial; each student should be prepared to deliver a 2 minute elevator speech on a case study in urban environment, resources and sustainability. You can also consider sharing experiences you've had.
- November 8 – Discuss the weekly reading: How can we incorporate gender into environmental decision-making?
- November 15 – Discuss the weekly reading: Why don't Canadians "walk the talk"?
- November 22 – The ERS 100 Book Club: Discuss lessons from the book you reviewed

### **Final Tutorial (November 29) is for Exam Preparation**

**Assignments – Total of 40% of final grade (15% Annotated Bibliography + 25% Book Review).** *Note: The professor and the TAs will not be answering emails about the assignments within 24 hours of each deadline, so please arrange to ask questions in advance, preferably during office hours.*

### **Annotated Bibliography – 15% of final grade**

Whenever we begin a new research project, researchers need to figure out what resources are available and what research has already been done. A helpful way to get started on this task is to create an annotated bibliography and sketch out what we have learned before we write an entire research paper. You will learn how to write a research paper in your other SERS classes, but this assignment will show you how to get started doing library research using reliable, academic sources.

#### *Getting Started*

Early in the term, select a topic of interest to you and begin reading academic sources to learn more about it. You may investigate and research almost any environment/resource issue or problem. Based on the lessons about library research, gather several reputable academic sources, read them and prepare the following assignment:

First, put together an annotated bibliography: an alphabetical list of sources, cited properly, with a brief written summary of the findings in each source. Annotated bibliographies help us to organize our thoughts, reflect on what we have learned, and properly attribute ideas to the researchers who developed them once we begin writing a research paper.

This annotated bibliography will contain FIVE (5) credible sources that are clearly relevant to the research topic you describe. FOUR (4) of the sources must be academic sources, i.e. peer-reviewed journal articles, books, or book chapters. The remaining source can be from reputable news sources or government reports. The sources cannot be the required readings in this course.

After you have read your articles and written your annotated bibliography, **write a brief report on your findings.** This report should offer a synthesis of your findings, written in your own words. Be sure that your report outlines the basic issue or problem, describes why this issue is important, and discusses your research findings, which might include something new you have discovered, debates about or within your issue area, and/or suggested solutions or alternatives. This report should **be 400-600 words long, double-spaced, using 12 pt. font.**

**The grading rubric for this Assignment is found in the main content folder on LEARN. That will help guide you to success.**



## **Book Review – 25% of final grade**

In this assignment, you will read a non-fiction book and write an assessment of it based on your new knowledge of transdisciplinary research. 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 book considering the questions below. Choose ONE book from the Required Texts list (no, not Newcomb's) and start reading. As you are reading, make notes about the book's central arguments, and consider how you might address the questions below.

Your Book Review should do the following three things:

1. Provide a **brief summary** of the content of the book. Imagine that the reader has not heard of the book before, and provide enough of a summary that they understand what the book is about. Also identify the book's core argument or perspective and the types of evidence and data used to support that argument/perspective.
2. Provide a **critical assessment** of the book: highlight what you think are the strengths and weaknesses of the book. Articulate whether or not you think the argument is persuasive. Consider the following questions when evaluating the book:
  - What would make the argument more persuasive?
  - Does the book help us to better understand or solve an environment or resource problem?
  - What kind of approach does the author take to the issue?
  - What kinds of issues does the author discuss?
  - Based on your new knowledge of transdisciplinary environmental problem-solving, does the book offer a transdisciplinary or interdisciplinary approach to understanding or solving the issue? Or does the author only appear to consider a single perspective?
3. Articulate **why this book is important to read (or not)** and who might benefit from reading it.

The Book Review should be **1000-1200 words** long, single-spaced, written in 12 pt. font. Submit on LEARN.

Tips:

- **The grading rubric for this Assignment is found in the main content folder on LEARN. That will help guide you to success.**
- Pick a book about a topic you are genuinely interested in.
- If there is a book that aligns with your independent research topic, you may find it easier to write the review.
- Read the book twice: once for comprehension, and twice to identify evidence to write your review.
- Note that a "critical" assessment does not necessarily mean a negative one.
- Just because a book is shorter than the others does not mean it will be easier to read!
- It is incorrect to refer to these books as "novels". These are all non-fiction books. There will be an **automatic 1% penalty for describing the book as a novel.**

## **Final Exam – 50% of final grade**

The final exam schedule will be finalized by the Registrar's Office (usually by early November) Please do not make travel arrangements in December until the exam schedule has been announced. A reminder that weather (for example) may force the University to close, postponing final exams. Such a *force majeure* is beyond the control of the University. Students need to be aware that such exams are then re-scheduled for the nearest Sunday – unless UW is still closed – or the nearest open date, which is usually after the normal end date of exams. We had such an issue in winter term 2018 where the exams continued for 2 days past the anticipated end because of a 3-day ice storm during the exam period. Students attempting to leave UW during the official exam period or even a couple of days after the exam period must be aware that they risk missing their exam, with dire academic consequences. We try to accommodate and adjust but our options may be quite limited by those circumstances.

The final exam will test all of the material in the course: lectures, readings, and tutorial content. The exam will be held during the exam period. If you require accommodations to write the exam, please contact AccessAbility Services early in the term. The final exam schedule will be finalized in October and travel plans should not risk conflicts with the exam period, even if it appears the schedule allows you to do so. This is because weather may force the University to close, postponing final exams. Such a *force majeure* is beyond the control of the University. Students need to be aware that such exams are then re-scheduled for the nearest Sunday – unless UW is still closed – or the nearest open date, which is usually after the normal end date of exams. We had such an issue in winter term 2018 where the exams continued for 2 days past the anticipated end because of a 3-day ice storm during the exam period. Students attempting to leave UW during the official exam period or even a couple of days after the exam period must be aware that they risk missing their exam, with dire academic consequences. We do try to accommodate and adjust even with such major events but in some cases, our options are quite limited by those circumstances.

## **Late Work**

All written assignments submitted after the deadline will receive an **automatic penalty of 5%**. An additional late penalty of 5% per day will apply thereafter. No assignments will be accepted after 7 days; those assignments will earn a grade of zero.

## **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.

**The University of Waterloo has a series of specific *academic policies, procedures and guidelines* that students must be aware of and follow.** See also <https://uwaterloo.ca/environment/undergraduate-teaching-resources>; all course syllabi in the Faculty of Environment are required to include the following:

### ***Intellectual Property:***

For further information on IP related to teaching, please see [https://uwaterloo.ca/legal-and-immigration-services/sites/ca.legal-and-immigration-services/files/uploads/files/volume\\_1\\_issue\\_3\\_winter\\_2018.pdf](https://uwaterloo.ca/legal-and-immigration-services/sites/ca.legal-and-immigration-services/files/uploads/files/volume_1_issue_3_winter_2018.pdf) and the Guidelines for Faculty, Staff and Students Entering Relationships with External Organizations Offering Access to Course Materials, <https://uwaterloo.ca/secretariat/faculty-staff-and-students-entering-relationships-external>. The following text is recommended:

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).

### ***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.

### ***Unclaimed assignments:***

Unclaimed assignments are held in the LEARN archives until U Waterloo chooses to delete them. After that time, they will be destroyed in compliance with UW's confidential shredding procedures (e-disposal in our case).

### ***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.

### ***Recording lectures:***

- Use of recording devices during lectures is only allowed with explicit permission of the instructor of the course.
- If allowed, video recordings may only include images of the instructor and not fellow classmates.
- Posting of videos or links to the video to any website, including but not limited to social media sites such as: Facebook, twitter, etc., is strictly prohibited.

### ***Co-op interviews and class attendance:***

Co-op students are encouraged to try and choose interview time slots that result in the least amount of disruption to class schedules. When this is challenging, or not possible, a student may miss a portion of a class meeting for an interview. Instructors are asked for leniency in these situations; but, a co-op interview does not relieve the student of any requirements associated with that class meeting.

When a co-op interview conflicts with an in-class evaluation mechanism (e.g., test, quiz, presentation, critique), class attendance takes precedence and the onus is on the student to reschedule the interview. CECA provides an interview conflict procedure to manage these situations.

Students will be required to provide copies of their interview schedules (they may be printed from WaterlooWorks) should there be a need to verify class absence due to co-op interviews.

### Who is this little madman teaching ERS 100? Who is this “Stephen D. Murphy” anyway?

Diverting from music (I was once in love with my guitar; it didn't last due to religious differences), I earned a B.Sc. (Hons.) and a Ph.D. from Queen's University in Biology, specializing in plant ecology. I completed a post-doctoral fellowship at the University of Guelph in agriculture. I've been at UW in SERS since 1996, focusing on management, conservation, restoration and mitigation of invasive species in ecosystems. I just finished a textbook on restoration ecology. One of our best restoration ecologists, Richard Hobbs, has bestowed on me flattery - and I quote – when he said “You are a seriously deranged individual.”<sup>3</sup>



My interests are related to integrated environmental knowledge and management – ecology, policy, sustainability, action; this is why I've taught a version of ERS 100 much of my career. The big focus for me is restoration ecology so I'll spend a bit of space on that. I have been both practitioner (consulting) and an academic. Since I first volunteered as a 14 year old with one of the 1<sup>st</sup> formal landscape-scale ecological restoration projects in 1979 (yes, 1979; *STFU*), I helped or led on over a thousand ecological restoration projects world-wide. This means a lot of field work and a lot of teamwork because I sure as hell didn't do a thousand plus projects all by my little 5'6" self.

I am a past-chair of the Board of the Ontario Chapter of the governing academic and practitioner organization, the Society for Ecological Restoration International (if you want opportunities beyond this course, SER Ontario and the local UW Chapter of SER recruits students for networking and educational purposes at a nicely reduced membership fee rate). I am the editor-in-chief of Restoration Ecology, and was co-chair of the 2013 25th Anniversary Conference of SER International at Madison WI. I am also Chair of the Centre for Applied Sciences in Ontario Protected Areas. I was part of the advisory council to Parks Canada that revised the strategic planning and standard for ecological restoration. I also am on some teams at “rare” in Cambridge ON, a Reserve that represents one of the largest contiguous ecological restoration and conservation projects in an urban area. I sit on the Boards or advise another two dozen or so organizations that are involved in restoration from municipal to international scales.

My advice to you all: Read. A lot. Be critical and understand the details and the big picture of what you read so don't just read shallowly. Get outside. A lot. Don't be an asshole in the sense of being mean to people for the sake of being mean. Grow a spine though. Think strategically – the long view – but act incrementally so you accomplish small steps and remember why the hell you wanted to work in the environment/resource field in the first place. Can you make lots of money doing this? Yes. A lot. Though I figured it was best to focus on a passion for an avocation rather than just a vocation first. Still, pay attention to what's around you and remember that networking is the key to being able to use your knowledge and experience to find a good career path. But life is more than that career path. Travel. Do something silly. Explore the world; your best chance for that is while you are young and not having to be too responsible. I did all that. No regrets ☺

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<sup>3</sup> Yes he meant this in jest but you will find out why he said this soon enough – Bwa ha ha ha ha!! He also called me evil when we were in New Orleans at a conference in 2014. And he turned me into a newt! I got better...

