



## **EESA01 – Introduction to Environmental Science**

**Fall 2018**

**Instructor:** Prof. Adam Martin (adam.martin@utoronto.ca), Room EV 464

**Office Hours:** Tuesdays, 1pm-3pm.

### **Course TAs:**

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**Course Lectures:** Monday 10am-12pm, Room AC 223

### **Course Practicals:**

This course has **four** hands-on, indoor and outdoor laboratories to enhance your learning experience. **LABS START THE WEEK OF SEPTEMBER 19** (see detailed schedule on Page 4 of this syllabus). Please go only to the laboratory room assigned to you when you registered for the course. Labs are small (~22 students each) and all sections are at full capacity.

You are responsible for adding a different lab section through ROSI/ACORN (and dropping the previous one), if you would like to switch lab sections. Please note that no one unfortunately, not even Prof. Martin, can remove someone from a lab section to fit you into another if the other is at capacity. If you go to the wrong lab (purposefully or accidentally), you will be responsible for not receiving the proper participation marks (part of your laboratory assignment mark), and you will likely not be permitted to participate in that lab section.

All practicals will be held on **Thursdays, Wednesdays, Fridays, Room EV 222 or EV 224**, following the weekly schedule below.

### **Course readings and texts:**

**1. Environment: The Science Behind the Stories**, 3<sup>rd</sup> Canadian Edition (Pearson, Canada), J. Withgott, M Laposata, and B. Murck

\* This book is required reading. We will not use the online “Mastering” package that comes with it, so no need to waste your money there.

**2. EESA01 Laboratory Manual.** This will be made available as a free pdf file on Quercus.

**Course Synopsis:**

This course will introduce students to the science behind processes occurring on the Earth and within its atmosphere. The course will look at relationships between environmental degradation and human activity, in terms of the physical, chemical, and biological processes operating at or near the Earth's surface. The environmental costs and consequences of human activity are examined in an attempt to define balances between human living conditions and environmental integrity. **The course is science-based and intended for students interested in pursuing environmental issues from a scientific (physical, chemical, biological, and mathematical) perspective.**

The course's primary intent is to provide a broad background for students pursuing an education in Environmental Science. That said, careers in Environmental Science are increasingly crossing traditional boundaries and thus, students in all disciplines are welcome to join in the course to improve their scientific literacy. This course forms an important entry point for all Environmental Science programs, and is also useful as a science credit or for general interest of students in other programs.

**Course Evaluation:**

| <b>Course Item</b>                 | <b>Date</b>        | <b>Percent</b> |
|------------------------------------|--------------------|----------------|
| Lab assignments                    | See schedule below | 4 @ 10% = 40%  |
| Mid-term exam<br>(multiple choice) | TBD                | 20%            |
| Final exam<br>(multiple choice)    | TBD                | 40%            |

**Accessibility Statement:**

Students with diverse learning styles and needs are welcome in this course. If you have a disability/health consideration that may require accommodations, please feel free to contact me directly and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. All enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) is available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. (416) 287-7560 or [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca).

### Course Content and Schedule

| <b>Date</b>   | <b>Lecture topic</b>  | <b>Reading</b>   | <b>Happening this week</b>    |
|---------------|---|--|-------------------------------|
| Sept. 10      | Introduction to Environmental Science                               | Chapters 1 and 2   |                               |
| Sept. 17      | Matter, Energy, & the Systems<br>Approach to Environmental Science  | Chapter 2 refresher  | Lab 1-odd practical sessions  |
| Sept. 24      | Earth Systems, Ecosystems and Global Biogeochemical Cycles          | Chapter 3  | Lab 1-even practical sessions |
| Oct. 1        | Global Energy Flows and the Global Water Cycle                      | Chapter 3 (pgs. 78-79)<br>Chapter 13 (pgs. 386-392)<br>Chapter 14 (pgs. 422-429) | Lab 2-odd practical sessions  |
| <b>Oct. 8</b> | <b>THANKSGIVING AND FALL READING WEEK – NO CLASSES OR TUTORIALS</b> |  |                               |
| Oct. 15       | Water Resources, Hydrology and Pollution                            | Chapter 11   | Lab 2-even practical sessions |
| Oct. 22       | Soils   | Chapter 7  | Lab 3-odd practical sessions  |
| Oct. 29       | Agriculture and Environmental Impacts                               | Chapter 8  | Lab 3-even practical sessions |
| Nov. 5        | Biodiversity and Conservation                                       | Chapter 9  | Lab 4-odd practical sessions  |
| Nov. 12       | Global Climate Change and Atmospheric Pollution                     | Chapter 13<br>Chapter 14   | Lab 4-even practical sessions |
| Nov. 19       | Non-Renewable Energy Extraction and Impacts                         | Chapter 15   |                               |
| Nov. 26       | Energy Alternatives   | Chapter 16   |                               |
| Dec. 3        | Catch-up and Final Review   |  |                               |

*I will follow this schedule as closely as possible, but things being what they are, some of these topics may "overflow" over into other time slots and slight alterations to the schedule may occur.*

### Laboratory/ Practical Details:

This course includes hands-on laboratory- and field-based data collection, and assignments directly related to the collected data. A freely available lab manual has been created that details lab safety, schedules, and assignments. The manual is available via Quercus. **Please read the following key points and the laboratory manual carefully:**

- There are too many laboratory sections to fit labs every week, thus you will go to lab **every other week**.
- Your attendance at all labs is **mandatory** and will be recorded.
- If you miss a lab, you will lose marks on that assignment.
- **Missing a lab means you will not be able to complete the assignment:** it is considered an academic offence to use a classmate's data.
- Dr. Martin will only make accommodations for missed labs with an acceptable medical excuse (see lab manual) and only if there is room to fit you in. **Do not assume** that you will be able to make up for missing a lab for any reason.
- Below is the schedule for when there are actual labs (see also your timetable).
- Weeks without labs, you simply do not have to attend.
- Lab 1 will be entirely indoors/laboratory-based.
- Labs 2, 3, and 4 will be outdoor. They will run rain or shine.
- Always meet at the lab, even for fieldwork-based labs.

**Laboratory/ Practical Details (black text denotes first week sessions; red text denotes second week sessions):**

| LAB/PRA Section           | Lab 1  | Lab 2  | Lab 3  | Lab 4   |
|---------------------------|--------|--------|--------|---------|
| PRA0001; TH; 9-11; EV 222 | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0002; TH; 9-11; EV 222 | Sep 27 | Oct 18 | Nov 1  | Nov. 15 |
| PRA0003; TH; 9-11; EV 224 | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0004; TH; 9-11; EV 224 | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0005; TH; 11-1; EV 222 | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0006; TH; 11-1; EV 222 | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0007; TH; 11-1; EV 224 | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0008; TH; 11-1; EV 224 | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0009; TH; 1-3; EV 222  | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0010; TH; 1-3; EV 222  | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0011; TH; 1-3; EV 224  | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0012; TH; 1-3; EV 224  | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0013; TH; 3-5; EV 222  | Sep 20 | Oct 4  | Oct 25 | Nov 8   |
| PRA0014; TH; 3-5; EV 222  | Sep 27 | Oct 18 | Nov 1  | Nov 15  |
| PRA0015; WE; 9-11; EV 222 | Sep 19 | Oct 3  | Oct 24 | Nov 7   |
| PRA0018; WE; 11-1; EV 222 | Sep 26 | Oct 17 | Oct 31 | Nov 14  |
| PRA0019; WE; 1-3; EV 222  | Sep 19 | Oct 3  | Oct 24 | Nov 7   |
| PRA0020; WE; 1-3; EV 222  | Sep 26 | Oct 17 | Oct 31 | Nov 14  |
| PRA0021; WE; 3-5; EV 222  | Sep 19 | Oct 3  | Oct 24 | Nov 7   |
| PRA0022; WE; 3-5; EV 222  | Sep 26 | Oct 17 | Oct 31 | Nov 14  |
| PRA0023; FR; 9-11; EV 224 | Sep 21 | Oct 5  | Oct 26 | Nov 9   |

### Practical Assignment Due Dates:

- Assignments 1, 2, and 3 are due at the **START** of your next lab.
- Assignments 1, 2, and 3 are to be submitted directly to your TA in the lab.
- For example, for someone in PRA001, the assignment related to Lab 1 (held on Sept. 20<sup>th</sup>) would be due at the start of the Lab 2 (on Oct 4).
- Assignment 4 must be deposited to the departmental drop box located on the 2nd floor of the EV building (adjacent to room EV 262).
- For all odd-numbered lab sections, the Lab 4 assignment is due by Thursday, Nov 22 by 2 pm.
- For all even-numbered lab sections, the Lab 4 assignment is due by Thursday, Nov 29 by 2 pm.

Unfortunately, it is next to impossible to keep track of the hundreds of students in this class and as such, **late assignments will not be accepted and will be given a mark of zero.** To ensure fairness to all students, this **rule will be followed very strictly.**

The only time a late assignment will be accepted is if a student suffers a medical issue that interferes with completing the assignment and is substantiated by a doctor's note (above a grade of "moderate"), given to your TA (who will forward to the Professor).

Take a pro-active approach and **consider handing in your assignment EARLY.**

Keep in mind that assignments are worth **10% each, for a total of 40% of your final grade**, so a zero on an assignment can be very, very detrimental to your final mark. **Students cannot submit assignments through e-mail, nor can they "slip them under the door"**. These assignments are likely to be lost. Please note that student petitions to resubmit lost assignments allegedly submitted in this fashion are generally denied. We will strive for as short a turnaround in marking assignments as is possible so that you regularly know where you stand (~2 weeks).

### Reminders of Key Points on Practicals:

1. Laboratory attendance is mandatory, attendance **WILL** be taken, and it will make up part of the mark on your assignments.
2. Come prepared for labs. You will need to purchase a lab coat and safety glasses or goggles if you don't already have them. You should purchase a laboratory notebook for use only in this course and bring it to every lab.
3. Lab 1 is entirely in-lab (indoors), but large parts of labs 2, 3, and 4 take place outdoors. Please come prepared for any weather and walking situation (e.g. rain gear, at least a good pair of sneakers, if not hiking boots).
4. For all labs, meet at the lab whether you are going outdoors for the lab or not.
5. You alone are responsible for the timing of your laboratory section. If you need to change, you need to monitor ROSI/ACORN regularly to see if a slot opens.
6. Assignments are always due at your next regularly scheduled lab, except for lab 4 (see above for details). **Absolutely no late assignments will be accepted.** For lab 4, a white sheet with the words "2pm" will be dropped in each assignment drop box at the exact due date and time.
7. Late penalties are **5% of the total assignment value (so minus 5% of 10 marks = minus 0.5 marks per day)**. However:

8. **Any assignment, for any reason, handed in more than 5 business days late, will not be accepted for marking.** Note that this rule applies as well to students who decide to add the course later in the semester.
9. Follow the rules because petitions for exemptions, late or misplaced assignments are likely to be denied.
10. ALL students, regardless of when you are officially entered into the class, are responsible for all aspects of the course.
11. **Plagiarism (cheating) will not be tolerated.** Do not let your friends “borrow” your assignment(s). Do not use a classmate’s data because you missed the lab. Do not let your friends see your final answers. Working together through problems is ok, but there is a very fine line and specifically, the line is that **you are to be evaluated on your INDIVIDUAL work.**
12. Every year at least 12-24 students push this too far and end up with ATLEAST a zero on a particular assignment (which puts you down almost a full letter grade). **You will not be given a “first warning”.** Depending on your past academic history, penalties CAN be harsher. You should also refer to the Student Code of Conduct near the end of this syllabus.

### **Important Mid-term Policies:**

The 1.5-hour mid-term examination will be held during the mid-term period, exact time, date and room(s) to be announced in class when this information becomes available. The mid-term exam will be entirely multiple choice and will be worth **20% of your final grade**. If you miss the mid-term for a verifiable reason (i.e. you have a Doctor’s note or there is a religious observance), an attempt to organize ONE make-up mid-term day will be made. **If you simply “miss” the mid-term, you will receive a mark of zero.** Note that Professor Martin will assess the validity of your having missed the mid-term. Do not leave your marks to something subjective.

### **Interaction with the Professor:**

Although I have listed a number of very strict sounding rules, I assure you that I care deeply for your success as a university student. Please do not be intimidated to come and speak with me regarding anything to do with the course or your interest in Environmental Science. The rules are necessary to make sure that the course runs smoothly **and fairly** for all students enrolled.

I (Professor Martin) very much enjoy speaking with students, especially about environmental science. You are welcome to discuss all facets of the course material with me immediately after class, during my office hours, or by appointment. I promise I am quite friendly and easy to talk with (honestly!).

### **Interaction with your Teaching Assistants:**

Your TAs also have office hours and you should take advantage of these for questions pertaining to your laboratory assignments. Note that the **TAs are not required to be intimately familiar with lecture material** (e.g. the material for your midterm test and final exam).

### **Email policy:**

For questions pertaining to the course and assignments, students should contact people in this order: 1) post the question on the course **Quercus “Discussion Board”**; 2) email your TA; and finally 3) email the course instructor.

All students should check the Discussion page on Quercus at least weekly and please **check the Discussion Board to see if your question is already answered**; oftentimes this is the case. Think of Discussion Board as an ever-evolving Frequently Asked Questions page.

Short emails will usually be answered with appropriate, short responses. Long, drawn out questions and/or questions pertaining to very general subjects, which are likely to be of interest to the entire class, should be posted on **the Quercus (Discussion Board module)** so that the entire class may benefit from the answer.

All emails should be sent via a “.utoronto.ca” or “mail.utoronto.ca” email address to ensure a response (most Hotmail, Gmail, etc end up in my junkmail, never to be seen). **Please note that due to the extremely large number of students I teach during the fall term and the very large number of emails I get every day, I will only respond to emails from students in this course on Mondays and Thursdays between 4 and 5 pm. As such, there is no such thing as an “emergency” email. If it is a true emergency, come to my office.** I do not check my email constantly because I am too busy to do so. Thus, it is not a good form of communication when a quick response is desired. Note alternatively that I will have at least one TA (and/or myself) check the Quercus Discussion Board at least daily during weekdays throughout the term, meaning Blackboard is your best bet for a <24-hour response time.

Each and every student is expected to attend EVERY lecture, but for your benefit, I have “weboptionned” the course, meaning that all lectures will be video-recorded and made available online. Lecture slides will be posted on Quercus, but little of what I may “say” will actually be on those slides so **it is important to note that the following is fair game for examination material: 1) what is on lecture slides; 2) what is in your readings (even if not expressly covered in a particular lecture!); and 3) EVERYTHING that I say in lecture.** Lecture slides are posted to facilitate your learning DURING lecture and for you to avoid having to copy large diagrams while you should be taking notes or listening. All lecture notes will be posted on Blackboard prior to each scheduled lecture. **My advice is that you annotate the posted lecture notes with your own notes during lecture.**

#### **Quercus Information:**

##### **Logging in to your Quercus Course Website:**

Like many other courses, EESA01 uses Quercus for its course website. To access the EESA01 website, or any other Quercus-based course website, go to the UofT Quercus login page at <http://portal.utoronto.ca> and log in using your UTORid and password. Once you have logged on to Quercus using your UTORid and password, look for the **My Courses** module, where you'll find the link to the EESA01 course website along with links to all your other courses.

##### **Activating your UTORid and Password:**

If you need information on how to activate your UTORid and set your password for the first time, please go to <http://www.utorid.utoronto.ca>. Under the “First Time Users” area, click on “activate your UTORid” (if you are new to the university) or “create your UTORid” (if you are a returning student), then follow the instructions. New students who use the link to “activate your UTORid” will find reference to a “Secret Activation Key”. This was originally issued to you when you picked up your Tcard at the library. If you have lost your Secret Activation Key you can call 416-978-HELP or visit the Help Desk. The course instructor will not be able to help you with this.

##### **Email Communication with the Course Instructor:**

At times, the course Instructor may decide to send out important course information by email. To that end, all UofT students are required to have a valid UofT email address. You are responsible for ensuring that your UofT email address is set up AND properly entered in the ROSI/ACORN system.

##### **You can check your UofT email account from:**

1. The UofT home page <http://www.utoronto.ca>: From the Quick Links menu on the top right, choose “my.utoronto.ca”. Enter your UTORid and password, and when the Welcome page opens, click “WEBMAIL”.
2. Email software installed on your computer, for example Microsoft Outlook or Mozilla Thunderbird. Visit the Help Desk at the Information Commons or call 416-978-HELP for help with the set up.

Forwarding your utoronto.ca email to a Hotmail, Gmail, Yahoo or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Hotmail, Gmail or Yahoo accounts are filtered as junk mail, which means that emails from your course instructor may end up in your spam or junk mail folder.

**You are responsible for:**

1. Ensuring you have a valid UofT email address that is properly entered in the ROSI/ACORN system.
2. Checking your UofT email account on a regular basis.

**Student Code of Conduct:**

Please arrive promptly for lecture and do not forget to turn off cell phones. I am fine with you annotating notes directly on your laptops, however, I will under no circumstances tolerate other uses of your computers during lecture (like students laughing over a funny YouTube clip or checking Facebook) that may be disruptive both to myself and your classmates. You are expected to abide by the Code of Student Conduct as set out by The Governing Council at the University of Toronto (<http://www.utoronto.ca/govcncl/pap/policies/studentc.html>). This document defines the standards by which students are to conduct themselves within class and within the University community at large. Please be advised that misconduct of any form will not be tolerated in this class. This includes plagiarism on tests, assignments, and exams, which will be strictly enforced and is easily detected. If you have further questions regarding what constitutes plagiarism or other academic offences, feel free to speak with Prof. Martin or your TA.

**Some Final Words of Advice:**

This course is moderately demanding and there are plenty of things that will be unfamiliar. I am not oblivious to the fact that most students will have little experience with Environmental Science, or possibly science in general. As long as you are willing to learn, I am willing to provide you with whatever resources you require to learn. It is difficult to "crash and burn" because of the large number of elements in the course. It is, however (and for the same reason), a considerable task to maintain a high standard. You cannot do really well if you do very poorly on any element, so be vigilant: a really bad mid-term, for example, can make a difference of at least a letter grade to your final mark.

Given the size of this class, I ask that we all conduct ourselves professionally and with respect. There are 300+ students in this lecture hall at the same time and given our limited time with each other (only 24 lecture hours + 8 lab hours for the entire term), it is important that 1) you put your best effort forward in paying attention in class, and 2) you do nothing that might disturb your fellow students or myself (cellphones must be put on silent, do not arrive late, do not discuss yesterday's Netflix episode (or watch it) with your friend, do not check email, Tweet, Snapchat or generally mess around while I lecture). You and all the other students have paid a lot of money to be here, so following these quite reasonable rules will provide an enriching learning experience for everyone.