

## " Environmental Pollution" (EES A11)

**Instructor:** Dr. Jovan R. Stefanovic

**Lecture:** Thursday 5 – 7 pm (AA 112)

**Email:** jovan.stefanovic@utoronto.ca

Office hour: Wednesday 2:30 – 3:30 pm (from Jan.17)

**Teaching Assistants (TAs) for quizzes:**

QUIZ #1: Beatriz Herrera (beatriz.herrera@mail.utoronto.ca)

QUIZ #2: TBA

TA coordinator: Alfred Achieng (alfred.achieng@mail.utoronto.ca)

TAs office hours: TBA on Quercus.

**Textbook (optional):** Hill, Marquita K. (2020). Understanding Environmental Pollution (4rd Ed.). New York: Cambridge University Press.

Specific readings will also be given out for some lectures.

<b>Grading:</b>	Quizzes (2 x 10.0%)	20%
	Midterm test	35%
	Final Examination	45 %

**The intent of the course:**

This course provides students an introduction to issues related to environmental pollution, with emphasis on causes, pathways, risks, mitigation and prevention. By the end of this course, students will have a good understanding of the dynamic nature of human-environment relationships, and the multidimensional characteristics of environmental pollution, through the use of Canadian and international examples. Special emphasis will be placed on issues related to eutrophication phenomena, exotic species invasions, water quality/fisheries management, energy, mining and waste management.

**COURSE LEARNING OBJECTIVES:**

- Identify a range of human uses of fresh water and their impacts on freshwater environments
- Recognize water pollution sources and explain the technologies used in water and wastewater treatment plants
- Describe the impacts of human activities on the atmosphere
- Outline Canadian and international responses to protect the atmosphere
- Understand the various categories of waste
- Appreciate the approaches to manage different types of waste
- Discuss energy resources and their environmental impacts
- Outline Canadian and international responses to energy issues

# Tentative Course Schedule

*Students should note that topics may span more than one lecture period*

Week/Lecture #	LECTURE TOPICS
1.	<b>An overview of the course, expectations, and objectives.</b>
	<b>Understanding Pollution</b> ..... Jan.11 <sup>th</sup> Humans are massively changing the Earth Why does pollution happen? Global pollution and global environmental health Root causes Our actions have consequences
2.	<b>Air Pollution (Part I)</b> .....Jan. 18 <sup>th</sup> Criteria air pollutants Air Quality Management System Hazardous air pollutants Video: TBA
3.	<b>Air Pollution (Part II)</b> .....Jan.25 <sup>th</sup> Pollution from space Air pollution in less-developed countries
4.	<b>Global Climate Change (Part I)</b> .....Feb. 1 <sup>st</sup> A warming Earth Significant Elements of Our Changing Climate Greenhouse gases and their sources
5.	<b>Global Climate Change (Part II)</b> .....Feb.8 <sup>th</sup> Assessing global climate change Industry and government action to reduce emissions QUIZ #1(on-line): Lectures 1,2,3 and Video: TBA
6.	<b>Stratospheric – Ozone Depletion</b> .....Feb. 15 <sup>th</sup> The stratosphere and ozone Antarctica Consequences of ozone depletion Ozone-depleting pollutants Reducing atmospheric levels of ozone-depleting substances Video: Stratospheric ozone depletion
	<b>Reading Week – University closed</b> ..... Feb.22 <sup>nd</sup>
7.	<b>Water Pollution</b> .....Feb. 29 <sup>th</sup> Conventional and Priority Pollutants Impacts of Pollution on Water Bodies The “Nitrogen Glut” Basic Concepts of Eutrophication

**8. MIDTERM (in class, in-person): Lectures 2-6.....Mar. 7th**

**9. Water and Wastewater Treatment .....Mar. 14<sup>th</sup>**

Drinking water standards

Drinking Water Treatment Process

Reducing Point and Non-Point Sources (Treating Wastewater)

**10. Solid and Hazardous Waste (Part I).....Mar. 21<sup>st</sup>**

Waste is a sign of inefficiency

Canada's Waste Stream

Waste – Management Hierarchy

Video: [How San Francisco Is Becoming a Zero Waste City](#)

QUIZ #2 (on-line): Lectures 7 and 9

**11. Solid and Hazardous Waste (Part II).....Mar. 28<sup>th</sup>**

The Fate of Disposed Municipal Solid Waste

Managing Hazardous Waste

**12. Energy and Mining.....Apr. 4<sup>th</sup>**

Energy Resources and Environmental Impacts

Emerging Energy Resources and Technologies

Environmental Impacts of Mining

## **Course 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.*

The lecture material will be presented in-person, Thursday at 5pm in Room AA 112.

## ***QUIZZES***

There are no tutorials in this course. Teaching Assistants will hold discussion board and office hours to help with the quizzes. Students are encouraged to actively consult with the TA regarding any problems or questions about the preparation of the quizzes. Each TA is responsible for only one quiz, so please consult only with TA who is responsible for the given quiz. You will have 2 on-line quizzes during the term, each quiz is worth 10% of the final grade. Each quiz is scheduled at the specific day (see lecture schedule or see below) and they will **always start at 5 pm on Quercus**. After a quiz is completed and 15 minutes break, I will continue with the lecture material (AA 112 around 6 pm). **If you have a conflict with the quiz at 5 pm, please note that this will not be accepted as a valid reason for accommodation.**

### **Format of the quizzes is:**

Multiple Choice questions, True/False questions, Matching questions, Fill in the blanks, Multiple dropdowns. **The quizzes will content 20 questions for 30 minutes, one question per page and you can't move backwards and review the questions.** The textbook is not mandatory, but since most of the lectures follow the textbook, I recommend that you read the textbook for quizzes or exam preparation. Some questions for quizzes and final exam will come from posted videos.

**At the beginning of the quizzes the Honour Pledge form (three questions) will be introduced.**

**Please Note that we will not be able to show quiz questions and correct answers after the quiz is submitted.**

<b><i>QUIZZES (on-line)</i></b>	<b>On Quercus</b>	<b>TA</b>
Mock quiz #1	Feb.1 – Feb.7	Beatriz Herrera
Quiz #1	Feb. 8 (at 5 pm)	Beatriz Herrera
Mock Quiz #2	Mar. 14 – Mar. 20	<b>TBA</b>
Quiz #2	Mar.21 (at 5 pm)	<b>TBA</b>

The mock quizzes are not for mark. We would recommend that everyone does it, as this will allow you to pinpoint and resolve any technical difficulties (internet connections, computer performance etc.) that might arise. By writing the mock exam, you will become familiar with the online settings and this will also help us to see if there are any problems ahead of time.

**More details on the quizzes will be circulated during the term.**

## MIDTERM TEST

**The in – person midterm test is closed book** and consists from 50 (Multiple Choice and True/False questions) for 75 minutes. The test is scheduled on Mar.7 at 5pm in AA 112 and probably in an additional room. **The midterm test will cover lectures 2, 3, 4, 5 and 6.** The test is worth 35% of the final grade. **If you have a conflict with the midterm test at 5 pm (Mar.7), please note that this will not be accepted as a valid reason for accommodation.** More details will be announced during the term.

### *MISSED QUIZZES and MIDTERM TEST*

If you miss quizzes and /or midterm (e.g., COVID, cold, flu and other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the online absence declaration. You have to formally self-declare absences through DPES on-line self-declaration form (<https://www.utoronto.ca/physsci/self-declaration-absence-form-0>). You can also find the form on the front page of DPES website, just underneath the picture with the “smiley faces” during the groundbreaking of our EV building (<https://www.utoronto.ca/physsci/welcome-physical-environmental-sciences>). **These on-line requests will be sent directly to your instructor, as well as to the department (DPES).** **Please note that you will still have to submit your absence through ACORN.** Both submissions have to be done **within 3 business days after the regular quiz, so the last day is Tuesday at 11:59 pm (the week after regular quiz or midterm).** The self-declarations submitted after this time will not be considered. After checking the validity of your self-declarations (**Please read the self-declaration instructions**), the makeup quiz or makeup midterm test will be announced (via email) by TA (usually a week after original quiz/test). If you miss the makeup quiz or makeup midterm test with a verifiable reason after you submit the new Student Absence Form (**NEW on-line self -declaration**), the weight of the quiz will be transferred to the final exam (in this case your final exam will be worth 55% of the final grade) or if you miss makeup midterm test the final exam will be worth 80%. The mark transfer from quiz to final exam you can claim only for one quiz. **The submission of the NEW on-line self-declaration form for makeup quiz or makeup midterm test have to be done in 3 business days after makeup quiz or makeup midterm test. After this time, they will not be considered and you will receive a mark of zero.** **If you simply “miss” the quizzes and /or midterm test, you will receive a mark of zero for them.**

### *FINAL EXAMINATION*

The 2-hour final examination will be held during the final examination period (**in-person, closed book**), exact time and date TBA. **The final exam will cover lectures 2-12 and the selected videos presented during the term.** The exam is worth 45% of the final grade. More details will be announced during the term.

## ***RECOMMENDED TECHNOLOGY REQUIREMENTS***

Quercus is optimized for Google chrome or Mozilla Firefox. The system does not support the following browsers: Internet Explorer, Microsoft Edge, Safari. There are known issues with those browsers.

Please see the link below for information regarding Recommended Technology Requirements for Remote/Online Learning at U of T.

[https://www.viceprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/Links to an external site.](https://www.viceprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/Links%20to%20an%20external%20site)

Not all of these will be needed for EESA11 (more info will follow) but it might be useful for your other courses.

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## ***ACCESSIBILITY STATEMENT***

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me 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.

Enquiries are confidential. The UTSC AccessAbility Services staff are 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).

Note: **Check Quercus regularly.** All announcements, lecture notes, and midterm marks and other information will be posted on Quercus.

**Other useful books for this course:**

“Understanding Global Warming Dire Predictions” Mann, E.M. & L.R. Kump (2008), Pearson Education Canada

“Environmental degradation and the tyranny of small decisions” :Odum, W.E., 1982, BioScience 32, 728-729.

"The human impact on the natural environment": Andrew Goudie, Blackwells, 388 pp.

"Planet under stress": Constance Mungall and Digby McLaren (eds.) For the Royal Society of Canada, Oxford University Press, 344 pp.

"Environmental Science": William Cunningham and Barbara Saigo, Wm. C. Brown Publishers, 622 pp.

"Geosystems": Robert Christopherson, Macmillan, 616 pp.

"Global Environmental issues": Kevin Pickering and Lewis Owen, Routledge, 389 pp.

"Environment": Peter Raven, Linda Berg and George Johnson, Saunders College Publishing, 567 pp.

"Environmental Science", Sixth Edition, Enger, E.D., and B.F. Smith, McGraw-Hill.

Chemistry, 4th Edition by Julia Burdge, 2017, McGraw Hill.