

## " Environmental Pollution" (EES A11)

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

**Lecture:** Thursday 5 – 7pm (Weeks 1-3 online via Microsoft Teams, delivery mode for weeks 4 -12 TBA)

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

Office hour: Wednesday 11am - 12 pm (from Jan.19)

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

QUIZ #1: Serra-Willow Buchanan(serrawillow.buchanan@mail.utoronto.ca)

QUIZ #2: Roberto Adriano Nicola (adriano.roberto@mail.utoronto.ca)

QUIZ #3: Li Ziqi (ziqu.li@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>	Final Examination	52 %
	Quizzes (3 x 16.0%)	48%

**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
- 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 management of 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.13 <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. 20 <sup>th</sup> Criteria air pollutants Air Quality Management System Hazardous air pollutants Video: Air pollution: how can you catch a gas
3.	<b>Air Pollution (Part II)</b> .....Jan.27 <sup>th</sup> Pollution from space Air pollution in less-developed countries
4.	<b>Global Climate Change (Part I)</b> .....Feb.3 <sup>rd</sup> A warming Earth Significant Elements of Our Changing Climate Greenhouse gases and their sources <b>QUIZ #1: Lectures 1,2,3 and Video: Air pollution: how can you catch a gas</b>
5.	<b>Global Climate Change (Part II)</b> .....Feb.10 <sup>th</sup> Assessing global climate change Industry and government action to reduce emissions
6.	<b>Stratospheric – Ozone Depletion</b> .....Feb. 17 <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> ..... <b>Feb.24<sup>th</sup></b>
7.	<b>Water Pollution</b> .....Mar. 3 <sup>rd</sup> Conventional and Priority Pollutants Impacts of Pollution on Water Bodies The “Nitrogen Glut” Basic Concepts of Eutrophication <b>QUIZ #2: Lectures 4,5,6 and Video: Stratospheric ozone depletion</b>

8. **Water and Wastewater Treatment** .....Mar.10<sup>th</sup>  
 Drinking water standards  
 Drinking Water Treatment Process  
 Reducing Point and Non-Point Sources (Treating Wastewater)
9. **Solid and Hazardous Waste (Part I)**.....Mar. 17<sup>th</sup>  
 Waste is a sign of inefficiency  
 Canada's Waste Stream  
 Waste – Management Hierarchy  
 Video: How San Francisco Is Becoming A Zero Waste City
10. **Solid and Hazardous Waste (Part II)**.....Mar. 24<sup>th</sup>  
 The Fate of Disposed Municipal Solid Waste  
 Managing Hazardous Waste  
[QUIZ #3 : Lectures7,8,9 and Video : How San Francisco Is Becoming A Zero Waste City](#)
11. **Energy and Mining**..... Mar. 31<sup>st</sup>  
 Energy Resources and Environmental Impacts  
 Emerging Energy Resources and Technologies  
 Environmental Impacts of Mining
12. **The Way Forward in Environmental Pollution Control**  
**Course Review**..... Apr. 7<sup>th</sup>

*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 first three lectures will be presented online via Microsoft Teams (Quercus). The lectures will be synchronized, delivered in real time or pre-recorded and played during the lecture time. In both cases lectures will be interrupted with Question/Answer sessions. **The delivery mode (in person or online) for lectures 4 to 12 will be announced.**

### *QUIZZES*

There are no tutorials in this course. Teaching Assistant 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 (see below), so please consult only with TA who is responsible for the given quiz. You will have 3 quizzes during the term, each quiz is worth 16% of the final grade. Each quiz is scheduled online (via Quercus) 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 (around 6 pm). If you have a conflict with the quizzes (Thursdays 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 30 questions for 45 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 will come from posted videos.

**During the quizzes the Honour Pledge form will be introduced.**

**Important: We will not be able to show quiz questions and correct/incorrect answers after the quiz.**

<i>QUIZ</i>	<b>On Quercus</b>	<b>TA</b>
Mock quiz	Jan.27	Serra-Willow Buchanan
Quiz #1	Feb. 3	Serra-Willow Buchanan
Quiz #2	March 3	Roberto Adriano Nicola
Quiz #3	March 24	Li Ziqi

The mock quiz is 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 see if there are any problems ahead of time.

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

## ***MISSED QUIZZES***

If you miss quizzes 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 ground breaking 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** (in the week after the quiz). The self-declarations submitted after this time will not be considered. After checking the validity of your self-declarations, the makeup quiz will be announced by TA. If you miss the makeup quiz 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 68% of the final grade). The mark transfer from quiz to final exam you can claim only for one quiz. If you simply “miss” the quizzes, you will receive a mark of zero for them.

## ***FINAL EXAMINATION***

The final examination will be held during the final examination period, exact time and date TBA. **Mode of exam (in person or online/remote) depends on government and University of Toronto COVID-19 recommendation.** The final exam will cover lectures 2-11 and the duration of the exam will be 2 hours. The exam is worth 52% 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.