

**Faculty of Environment, U of W**  
**ERS 317: Waste Management**  
**Winter 2020**

**Time and location:** Mondays 6:30 – 9:20 pm; EV1-350

**Lecturer:** John Jackson: 519-744-7503; [jjackson@web.ca](mailto:jjackson@web.ca)

**Teaching Assistant:**

There will be no designated office hours since the lecturer does not have an office on campus. Students are encouraged to contact the lecturer at class break or through e-mail or telephone. The lecturer will usually be in the classroom by 6:05, but just to be sure if you wish to meet with the instructor prior to class, please contact me at least two days before class. If this pre-class time for a meeting does not work for you, contact me for another time.

**Course Purpose:**

This course examines current and leading edge methods and systems for waste management and for diversion of used resources from disposal with the objective of contributing to a circular economy. Related social, economic, health, political and ecological matters are considered within a policy and planning framework. The main focus is on municipal waste management, with a lesser focus on radioactive wastes and industrial hazardous wastes.

By the end of the course a student should understand waste management operations; the environmental and social implications of related waste management decisions; provincial policy and programs; and the policy framework that exists or needs to exist to achieve a circular economy.

**Course Outline:**

WEEK 1: Jan 6:	Direction of Resource/Waste Management
WEEK 2: Jan. 13:	Generation of Solid Waste & Reduce-Reuse-Zero Waste
WEEK 3: Jan 20:	Recycling & Composting
WEEK 4: Jan. 27:	Incineration and Energy From Waste
WEEK 5: Feb. 3:	Midterm Exam
WEEK 6: Feb. 10:	Landfill

WEEK 7: Feb. 17:	No class – Reading week
WEEK 8: Feb. 24:	Extended Producer Responsibility
WEEK 9: March 2:	Radioactive Waste
WEEK 10: March 9:	Industrial Hazardous Wastes & Waste Export
WEEK 11: March 16:	Siting Waste Management Facilities
WEEK 12: March 23:	Class Presentations
WEEK 13: March 30:	Class Presentations

### Readings Sources:

Readings are posted on Waterloo Learn.

If additional readings are added to the site after the start of classes, you will receive e-mail notice of the addition.

### Course Requirements:

Course will be evaluated using the following elements.

Late assignments will be penalized by 5% per day late. If a revised deadline for written material seems absolutely necessary, it may be negotiated with the instructor until 7 days before the deadline. Written approval of the instructor for an extension must be received.

### Examinations:

**Midterm Exam** 30%

**Purpose:** to test students on the content of both class lectures and assigned readings.

**Final Exam (take home exam)** 20%

**Purpose:** to get students to apply their learning from lectures and assigned readings to real-life waste management scenarios and analysis.

No other or additional research is to be used to complete the take-home exam. **This is not another research paper.** Students will be given two weeks to complete the take-home exam. The exam should be between 2,000 and 2,500 words. Students will be challenged to keep their answers clear and concise within the word limit.

**Personal Waste Audit Report** 10%

## **Class Project**

40% [10% class presentation, 30% paper]

Grades will be based on accuracy, organization, clarity, adherence to length requirements, depth of understanding, relevance and conciseness. Students in this course are expected to become participants in the changing world of waste management. Research is required to involve work beyond library and web research, including direct contact with persons active in the waste management field.

### **Significant Dates:**

- Jan. 13: Conduct personal waste audit
- Jan. 27: Report on waste audit due
- Jan. 27: Submission of research project proposal for approval
- Feb. 3: Midterm exam
- March 23  
& March 30: Class presentations on Research Project
- March 30: Research Project Paper due
- March 30: Take-home exam distributed
- April 13: Take-home exam due

**Personal Waste Audit Report:**

**Purpose:** to become more aware of the garbage we throw away and to change our habits to minimize garbage creation. The waste audit form that should be used is on the Learn site.

Step 1: Jan. 13, fill in Waste Watcher’s Diary for seven consecutive days at some point before submitting report.

Step 2: By Jan. 27, submit report (1,100-1,200 words; put word count on first page of report). Attach your waste diary to your waste audit report when you submit it. Do not include the audit page in your word count.

The report should contain the following aspects:

- 1) major types of waste you disposed of & where you disposed of it;
- 2) why these items were disposed of instead of being dealt with by elimination, reduction, reuse, recycling, or composting;
- 3) what can be done to overcome these barriers to elimination, reduction, reuse, recycling or composting;
- 4) connect your personal experience with the broader waste management programmes where you live.

Since this report is based on your personal experience with waste, it should be written as a personal essay instead of as a formal academic report. For example, use of the word “I” is appropriate, no footnotes required.

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**Research Project:**

**Purpose:** to gain better in-depth understanding of a resource/waste management topic; to gain real world experience on a waste issue; to contribute to improved waste management.

**Types of Projects:** The project must be more than library and web research. Look for original documents from government agencies, etc. Depending on topic, contact citizens’ groups, environmental groups, waste generators, waste handling companies, and governments. See if the project can be of practical benefit to someone, e.g., do some research for an environmental or citizens’ group or help them organize; critique a proposal for a waste policy currently under review or out for public comment; help develop a waste management program in your residence or at work; propose ways to address a waste management issue that seems intractable.

Projects may be carried out individually or co-operatively with other class members. **If you do a co-operative project, the report size requirements may need to be adjusted.** This should be worked out with the instructor as your project proposal is being developed.

Important Do's:

- 1) Start early to ensure that the project is viable and contacts are available to help you.
- 2) Make sure your proposal is approved by the course instructor before you proceed.
- 3) Set a specific action plan with timelines to help keep you on track.
- 4) Plan in advance to have the final project delivered on the due date (5% loss on your mark each day the project is late)
- 5) Don't hesitate to contact course lecturer if problems arise
- 6) Make sure your work has been proofed for grammar and typos.

Important Don'ts

- 1) Do not carry out a project without prior written approval from the course lecturer.**
- 2) Do not start your project late.
- 3) Don't attempt to do too much

**Step 1:** By January 27, submit a written proposal for approval. The proposal should include a description of the topic, what will be gained by doing the project, and a description of how you will do the project as a set of logical steps with timelines. Do not be too vague or you will be asked to re-submit the proposal. **You will not be graded on the proposal, but do not proceed on your project unless your proposal has been approved.**

**Step 2: Class Presentation:** On March 23 or 30 do class presentation on your project. This presentation should focus on the main findings of your project.

Each individual or group will be required to make a brief presentation on their work. Details on the presentations, including the amount of time for the presentation, will be provided once the project proposals are submitted. A schedule of presentations and length of presentations will be made available on February 24.

**Step 3: Research Paper:** Submit research paper by March 30. The paper should describe your project methodology, your activities, and findings and recommendations. The paper should also include a section on the lessons you learnt in conducting the project that another person trying to carry out the project would find valuable.

The paper should be no less than 3,500 words and no longer than 4,000 words, excluding appendices. At the top of the submitted paper give the word count,

excluding the appendices. **If it is a group project, determine the appropriate length for the paper in discussion with the course lecturer.**

Examples of an appendix include, but are not limited to: photos; surveys; detailed survey results (i.e., the granular information); brochures; interviews; detailed waste audit results; posters; detailed lists etc..

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