Department of Environment and Resource Studies, U of W
ERS 317: Waste Management
Winter 2014

Time and location: Wednesdays 6:30 – 9:20 pm; EV3-3412

Lecturer: John Jackson: 519-744-7503; jjackson@web.ca

Teaching Assistant: Sabine Weber; s9weber@uwaterloo.ca

Students are encouraged to contact the lecturer at class break or through e-mail or telephone. If you wish to meet with the instructor prior to class, please contact me at least two days before class. There will be no designated office hours since the lecturer does not have an office on campus.

Course Purpose:
This course examines current and leading edge methods and systems for waste management and for diversion of used resources from disposal. 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.

Course Outline:

WEEK 1: Jan 8:   Direction of Resource/Waste Management

WEEK 2: Jan. 15:   Generation of Solid Waste & Reduce-Reuse-Zero
                                        Waste

WEEK 3: Jan 22:   Recycling & Composting

WEEK 4: Jan. 29:   Incineration and Energy From Waste

WEEK 5: Feb. 5:   Landfill

WEEK 6: Feb 12:   Mid-term exam

WEEK 7: Feb. 19:   No Class – Reading Week

WEEK 8: Feb. 26:   Extended Producer Responsibility

WEEK 9: March 5:   Radioactive Waste

WEEK 10: March 12:   Industrial Hazardous Wastes

WEEK 11: March 19:   Siting Waste Management Facilities

WEEK 12: March 26:   Class Presentations

WEEK 13: April 2:   Class Presentations (cont)

Readings Sources:
There are two sources of <u>required</u> readings for the course:
1. Hans Tammemagi, *The Waste Crisis: Landfills, Incinerators, and the Search for a Sustainable Future*, Oxford University Press, 1999 [available in University Bookstore]
2. Other readings provided 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:

Examinations:

Midterm Exam	25%
Final Exam (take home exam)	25%
Personal Waste Audit Project and 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.

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

Significant Dates:

Jan. 16 - 22   Conduct personal waste audit

Jan. 29   Report on waste audit

Feb. 5 (preferably earlier)
          Submission of research project proposal for approval

Feb. 12   Midterm exam

March 26 & April 2: Presentations on Research Project

April 2   Research Project Paper due & Take-home exam distributed

April 14   Take-home exam due

Assignments should be submitted into the appropriate course drop box on the Learn website.

Personal Waste Audit:
Purpose: to become more aware of the garbage we throw away and to change our habits to minimize garbage creation.

Step 1: Jan. 16-22, fill in Waste Watcher's Diary.

Step 2: By Jan. 29, submit report (2-3 single-spaced pages) stating:
      1) major types of waste you disposed of & where you disposed of it;
      2) what can be done to eliminate, reduce, recycle or compost these wastes.

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 and waste handling companies. 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 Feb 5 <u>at the latest</u>, 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: On March 26 or April 2 do class presentation on your class project. This presentation should focus on the main findings of your project, and on the lessons learnt in conducting the project that another person trying to carry out the project would find valuable.

Step 3: Submit research paper by April 2. The paper should be no less than 5,000 words and no longer than 6,000 words, excluding appendices. At the top of the submitted paper give the word count, <u>excluding the appendices</u>. If it is a group project, determine the appropriate length for the project in discussion with the course lecturer.

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

Class Presentation:
Each individual or group will be required to make a brief presentation on their work. The amount of time for the presentation will be determined once the project proposals are submitted. Your presentation should be aimed at an interested, intelligent, lay audience. You should:
• state the aim of your project;
• briefly outline the work that you did in the project; and
• highlight some of your key findings and recommendations.

A schedule of presentations and length of presentations will be made available on February 12.

Faculty of Environment Policies

♦ **Unclaimed assignments:** Unclaimed assignments will be retained until one month after term grades become official. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

♦ **Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.
www.uwaterloo.ca/academicintegrity/ Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at
http://www.lib.uwaterloo.ca/ait/

♦ **Research Ethics:** The University of Waterloo requires all research conducted by its students, staff, and faculty that involves humans as participants to undergo prior ethics review and clearance through the Director, Office of Human Research and Animal Care (Office). The ethics review and clearance processes are intended to ensure that projects comply with the Office's Guidelines for Research with Human Participants (Guidelines) as well as those of provincial and federal agencies, and that the safety, rights and welfare of participants are adequately protected. The Guidelines inform researchers about ethical issues and procedures that are of concern when conducting research with humans (e.g., confidentiality, risks and benefits, informed consent process, etc.). If the development of your research proposal consists of research that involves humans as participants, please contact the course instructor for guidance and see http://iris.uwaterloo.ca/ethics/. If you have questions on obtaining approvals, contact Julia Joza, jajoza@uwaterloo.ca, ext 38535 in the Office of Research.

• **Categories other than plagiarism (defined as varieties of cheating):**
    o Submission of work not written and prepared by you'
    o Copying or stealing the work of another student;
    o Paying for the creation of work by a commercial service or by an acquaintance to be submitted by you;
    o Using an essay for submission by you, which was found, on one of the free internet essay sites;
    o Writing a paper for course submission by another student;
    o "Recycling" or submitting an essay, report, or assignment when a major portion has been previously submitted for another course without the expressed permission of all instructors involved.

♦ **Note for students with disabilities:** The AccessAbility Office, located in Needles Hall, Room 1132, collaborates with all academic departments to arrange

appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AccessAbility Office at the beginning of each academic term.

♦ **Religious Observances:** Please 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.

♦ **Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact your Undergraduate Advisor for details.

♦ **Discipline:** A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties, check Guidelines for Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

♦ **Appeals:** A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policy72.htm

- **Consequences of Academic Offences:** ENV students are strongly encouraged to review the material provided by the University's Academic Integrity Office (see: http://uwaterloo.ca/academicintegrity/students/index.html).