ENBUS 202:
ENVIRONMENTAL MANAGEMENT SYSTEMS

School of Environment, Enterprise and Development (SEED)
Faculty of Environment, University of Waterloo

Instructor
Prof. Steven B. Young
sb.young@uwaterloo.ca
Office EV3 4243

TA's
Leah Whittaker
Muhammad Ahmed
Ankesh Siddhantakar

Class
Tuesdays and Thursdays, 8:30-9:50 am, EV3 1408

Office Hours
Tuesdays 1-2 pm or by appointment

Welcome domestic and international students. Exchange students please identify yourself to the instructor after first class.

ENBUS 202 LEC 0.50 Course ID: 005265   Environmental Management Systems

The examination and evaluation of Environmental Management Systems such as ISO 14001. Alternate EMS systems will be compared and reviewed to identify their respective strengths and weaknesses. Case studies will be used to illustrate the ideas presented.

Prereq: ENBUS 102; Environment and Business students only. This course is a required element of the environment and business program and is generally restricted to second year students in the program.

LEARNING TOOLS

LEARN

LEARN is used as the course website. Presentation materials should be on the website the day of the lecture. Some materials from guests may not be shared. Emails to the instructors must identify the course number—or just use the utility in LEARN.

Piazza

This term we are using Piazza for class discussion. The tool aims to get you help fast and efficiently from classmates, TAs, and the professor. See LEARN for details.

Crowdmark

In conjunction with LEARN, assignments will be submitted and marking will be done using the Crowdmark grading tool. See LEARN for details.

OBJECTIVES

Organisations, especially businesses, are dominant agents of environmental impact – both positive and negative. The purpose of this course is to introduce the "tools" that makes-up environmental management programs, looking mostly at voluntary approaches taken by organizations, and presented from the perspective of the business manager. The course will also examine various environmental "issues" relevant to businesses and industries.

After you complete the course you should be able to:

- Describe the role and relevance of a company environmental manager
- Explain and use the plan-do-check-act cycle of management systems
- Read and apply international standards like ISO 14001
- Link environmental management systems and company programs to regulatory compliance and continual improvement
- Compose basic policies, plans and procedures in a company environmental management program
- Identify major industries and emissions in Canada
- Speak in terminology of management systems, reporting, auditing, indicators and other environmental management tools used by organisations

Outcomes should also include general competencies:

- Demonstrate literacy and basic numeracy in environmental and business contexts
- Write professionally for management

COURSE READINGS

Brady, J., Ebbage, A., Lunn, R. (ed.) (2011). *Environmental Management in Organizations.* Second edition. Earthscan. ISBN 9781849710626 (Hardback). eBook 2013, ISBN 9781135072469, https://www.taylorfrancis.com/books/9780203597675

Selected chapters:

- *3.1 The Response of Organizations*
- *3.2 Environmental Management Systems*
- *4.3 Auditing*

Heras-Saizarbitoria, I (ed.) (2018). *ISO 9001, ISO 14001 and the Management System Standards.*
Springer. eBook, https://doi.org/10.1007/978-3-319-65675-5_1.

   Selected chapters:

-   *Three Decades of Dissemination of ISO 9001 and Two of ISO 14001: Looking Back and Ahead.*
    Iñaki Heras-Saizarbitoria, Olivier Boiral, Erlantz Allur. Pages 1-15
-   *Implementing the ISO 50001 System: A Critical Review.* Alexander Yuriev, Olivier Boiral.
    Pages 145-175
-   *Conflicts Arising in the Generation Process of the ISO 45001 Standard.* Iñaki Heras-
    Saizarbitoria, Ander Ibarloza, Alberto Díaz de Junguitu. Pages 177-191

ISO 14001: 2015. *Environmental management systems — Requirements with guidance for use.*
Geneva: International Organisation for Standardisation.

-   Published as a 2016 Canadian standard, CAN/CSA-ISO 14001:16, this 35-page document is
    required reading. Get the right document – note emphasis added above! The standard is
    available in other languages – which may be helpful to some – but the course is in English.
-   ISO standards are available through the Waterloo library
    https://uwaterloo.ca/library/online-reference-shelf and look for Standards/Codes, access
    TechStreet and find CAN/CSA-ISO 14001:16

ISO 9001:2018. *Quality management systems — Requirements.* Geneva: International Organisation
for Standardisation.

-   Access via TechStreet or ISO website: https://www.iso.org/obp/ui/#iso:std:iso:9001:ed-
    5:v1:en
-   Read to end of section 3.

ISO 45001: 2018. *Occupational health and safety management systems — Requirements with
guidance for use.* Geneva: International Organisation for Standardisation.

-   Access via TechStreet or ISO website: https://www.iso.org/obp/ui/#iso:std:iso:45001:ed-
    1:v1:en
-   Read to end of section 3.

ISO 50001:2018. *Energy management systems — Requirements with guidance for use.* Geneva:
International Organisation for Standardisation.

-   Access via TechStreet or ISO website: https://www.iso.org/obp/ui/#iso:std:iso:50001:ed-
    2:v1:en
-   Read to end of section 3.

Saint John Energy (January 2018). *ISO 14001 Environmental Management System (EMS) Manual.*
Dillon Consulting.

-   Provided on LEARN

Auld, G., Bernstein, S., & Cashore, B. (2008). The New Corporate Social Responsibility. *Annual Review of Environment and Resources,* 33(1), 413–435. doi:10.1146/annurev.environ.32.053006.141106

Krut, R., & Gleckman, H. (1998). *ISO 14001: A missed opportunity for sustainable global industrial development.* Earthscan Publications. (pages 16-26).

Melnyk, S. A., Sroufe, R. P., & Calantone, R. (2003). Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management,* 21, 329–351.

Style Guide – SB Young 2018 (updated Sept. 2018) – guidance and <u>requirements</u> for writing and assignments

ASSESSMENTS

Each student will be assigned to a group led by a TA who will oversee the student's assignments over the term. Teaching assistants (TA's) will assist the instructor with grading the majority of course work, will manage LEARN content with the professor, and will be available for student queries.

Submissions will NOT be to LEARN; rather we are using CrowdMark. An email will be sent to you with a personal link for each submission.

Assignments will be scaffolded: A1 leads to A2, B1 leads to B2. When you submit the second assignment you must <u>include the feedback</u> file from the first assignment inside your new submission. For example, this will mean that if A1 was three pages and A2 is four pages, then the submission for A2 will include the marking feedback provided from A1 as the first three pages followed by the new four pages, thus making the submission for A2 seven pages long. You will need to combine PDF files to do this.

Assessment	Weight	Description
Assignment **A1**	**20%**	Facility emissions report.
Assignment **A2**		A1 and A2 are scaffolded: A2 builds from A1.
Assignment **B1**	**20%**	Environmental management system in practice.
Assignment **B2**		Scaffolded
Quiz **Q0**	0%	Curriculum quiz to be completed before access is provided to other quizzes.
Online quizzes **Q1-Q5**	**5%**	Online in LEARN. On your own time. Grading will be distributed across all quizzes.
Midterm **M**	**20%**	Mix of short answer & multiple choice

		October 24, in-class
Final exam **X**	**35%**	Multiple choice As per Registrar's exam schedule.

SCHEDULE

Schedule is subject to change due to guest availability. Do readings in preparation for the week. Quizzes will be made available on LEARN for you to complete in your own time.

WEEK		CONTENT	READINGS, ASSIGNMENTS
1	5-Sep	Outline, expectations and assessments	
2	10-Sep	Course framework: Industry, tools and issues	Auld, Bernstein & Cashore
	12-Sep	Tools for environmental management	Brady et al., ch. 3.1 & ch. 3.2
3	17-Sep	What is a "management system"?	Heras-Saizarbitoria, pages 1-15
	19-Sep	PDCA	**Assignment A1 - DUE**
4	24-Sep	International Organisation for Standardisation	
	26-Sep	Environmental Management Systems	ISO 9001:2018 to end of section 3
5	1-Oct	ISO 14001 structure, purpose, policy	ISO 14001:2015 to end of section 3
	3-Oct	ISO 14001	Saint John Energy manual
6	8-Oct	*Guest*	**Assignment A2 – DUE**
	10-Oct	ISO 14001	ISO 14001:2015 – finish reading
	15-Oct	FALL BREAK – NO CLASS	
	17-Oct		
7	22-Oct	ISO 45001 & ISO 50001	Heras-Saizarbitoria, pages 145-191 ISO 45001:2018 to end of section 3 ISO 50001:2018 to end of section 3
	24-Oct	**MIDTERM EXAM**	
8	29- Oct	ISO 14001 critique	Krut & Gleckman, p. 16-26
	31-Oct	ISO 14001	Melnyk, Sroufe & Calantone
9	5-Nov	Indicators and reporting	

	7-Nov	Environmental auditing	**Assignment B1 – DUE**
10	12-Nov	Environmental auditing	Brady et al., ch. 4.3
	14-Nov	*Guest*	
11	19-Nov	TBD	
	21-Nov	Industry associations and codes	
12	26-Nov	Industry associations and codes	**Assignment B2 – DUE**
	28-Nov	Values and strategies for environmental management	
	3-Dec	Review and future	
		FINAL EXAM	

GRADING EXPECTATIONS

Consistent with SEED policy, assessments are designed to provide fair evaluation of undergraduate performance and avoid grade compression.

Grade (%)	Qualitative description	Expected distribution
90+	Exceptional – in the sense that grades above 90 should be the exception and granted only where the student performance clearly exceeds the course expectations and shows full mastery of the subject matter of the course	10-20%
85 -90	Outstanding – demonstrates excellence and an insightful grasp of the subject matter. Marks here should be awarded to students that clearly exceed the expected performance in the course relative to other students.	
80-85	Excellent – demonstrates a strong grasp of subject matter in all or most areas of the course and ability to produce work of consistently high quality	60-80%
75-80	Very good – demonstrates strong grasp of subject matter across most areas of course and good or satisfactory knowledge in others, as well as ability to produce work above expected level.	
70-75	Good – demonstrates good knowledge of fundamental concepts and satisfactory understanding of more advanced ideas within course. Has ability to produce work at required level.	
65-70	Satisfactory – demonstrates basic understanding of fundamental concepts within course, but lacks advanced understanding of application. Inconsistent quality of work, but overall at required level.	10-20%
60-65	Minimally satisfactory – student achieves minimum expectations in most areas, and produces work that rarely exceeds minimal requirements	
50-60	Marginal performance – student demonstrates superficial grasp of subject matter in many areas of the course.	
Below 50	Fail	

COURSE REQUIREMENTS

- Submissions
  - Deadline is **11:59 pm** on due date.
  - Assignments may be subject to Turn-it-in review.
  - CrowdMark will be used for submissions and marking.
- Style
  - A Style Guide is provided and shall be followed – note "fatal errors".
  - Use APA style for references.
  - Word count requirements include tables and figures but do not include supporting materials like cover page, references and appendices.
  - Readability and clarity: Students are expected to present well organized, and properly written work. Exceptional penalties may be applied in cases where readability or clarity is inadequate.
- Lateness
  - Late submissions will be accepted and identified.
  - An assignment that is late brings about an immediate 50% penalty. Assignments later than five business days will not be accepted unless written arrangement has been made, and a grade of zero will be recorded for that assignment.
- Communications.
  - Visits during office hours and face-to-face consultations after class are encouraged.
  - Electronic communication for the course should be sent through LEARN or using your uWaterloo email. Identify the course in your email subject.
  - The instructor may not respond to requests or messages sent via personal email accounts or social media.
  - TAs and the instructor will try to reply to legitimate inquiries from students within three (3) business days. Queries made within two (2) business days of due dates of assignments or tests may not be entertained.
  - Consult the course outline (Overview), LEARN and other course materials before making inquiries.
- Devices in-class
  - Laptops, smart phones and tablets are permitted in class for course-related purposes. Anybody found accessing the internet for other purposes (e.g. checking email, chatting, social media, non-course sites, playing on-line games, etc.), or using laptops off-line for non-course purposes (e.g., games, movies, music), may be asked to leave the class.
  - Devices should be silent in-class.
- Turnitin
  - Text matching software (Turnitin®) may be used to screen assignments in this course.
  - Students not wishing to use Turnitin are asked to provide each relevant assignment in both printed and electronic (via email) formats, and are required to provide an additional annotated bibliography document that provides an explanation on the rationale and value of each source used, a discussion of other sources considered but not used, and an explanation of the absence of sources (where sought, what considered, example bibliographic search, etc.) if that was the case.
- Returning assessments

- o The instructor will make every effort to return assignments directly to the student(s). In cases where this is not possible or impractical, assignments may be left in a public area for students to pick up. The instructor will:
    - Announce the method of returning assignments;
    - Allow students to make alternative arrangements;
    - Set a defined time limit, not to exceed two weeks, for which the assignments will be left in the public area.
    - Ensure the grade assigned is on the inside of the document.
- Remarking of assignments and tests
    - o If you feel the need for review or remarking, submit your request for remarking printed on paper with a cover page attached to a complete printed copy of the assignment to the professor, including all comments, grading and feedback. Explain in detail what you feel needs to be addressed.
    - o Requests for remark must be submitted within one (1) week of return of the assignment.
    - o Submit your request directly to the professor, his office or into his SEED mailbox in EV3.
    - o The professor will remark the contested work, possibly including other areas of the assessment, and the mark may increase or decrease.
- Requests for exemptions, medical or compassionate considerations are to be discussed with the professor in advance or as soon as possible.
    - o If approved, the value of other assessments will normally be reweighted to accommodate the missed work.
    - o Tests, midterms, quizzes or assignments will not be rescheduled to accommodate absence.

FACULTY AND UNIVERSITY POLICIES

Unclaimed assignments: Unclaimed assignments will be retained for a minimum of one year after term grades become official in QUEST. 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: Please also note that the 'University of Waterloo requires all research conducted by its students, staff, and faculty which 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 which 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, the please contact the course instructor for guidance and see http://iris.uwaterloo.ca/ethics/

Note for students with disabilities: AccessAbility Services, located in Needles Hall, Room 1401, 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 AccessAbility Services at the beginning of each academic term.

Mental Health: The University of Waterloo, the Faculty of Environment and our Departments consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical

and / or emotional. Please note that help is available. Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services.

Religious Observances: A student needs to 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/Policies/policy72.htm

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin® in this course.

REGARDING PRIVACY

Communications with Instructor and Teaching Assistants: All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account, they will be requested to resend the email using their personal University of Waterloo email account.

Distribution of completed assignments: Detail the method by which students can pick up marked assignments and for how long unclaimed assignments will be kept (see information below under, Additional steps to ensure a student's privacy is protected, for details on claiming assignments).

Recording lectures:

- Use of recording devices during lectures is only allowed with explicit permission of the instructor of the course.
- If allowed, video recordings may only include images of the instructor and not fellow classmates.
- Posting of videos or links to the video to any website, including but not limited to social media sites such as: facebook, twitter, etc., is strictly prohibited.