

ENBUS 375: Circular Economy

Spring 2020

Thursdays 11:30 am – 2:20 pm, Online via LEARN

Instructor: Dr. Komal Habib (komal.habib@uwaterloo.ca)

COURSE DESCRIPTION

Circular economy is a development model aimed at achieving maximum resource efficiency and reduced waste production by keeping the resources in use for as long as possible. We need a number of resources, such as metals, fossil fuels, nutrients etc. for human wellbeing. With the economic and population growth, we need more and more resources to produce products and provide services that result in more waste generation. This traditional economic model is linear where we ‘take, make, use and dispose’. A circular economy is seen as an alternative to the current linear economy, i.e., ‘make, use, reuse, remake, recycle’. It is meant to reduce pressure on primary resources by meeting a substantial portion of our resource demand through secondary resources. By 2050, we need to produce resources at an unprecedented rate to satisfy the needs of 9 billion people. A transition to circular economy can help to face this challenge in a resource efficient manner.

This course is designed to equip the students with the knowledge and expertise required to design, implement a circular economy initiative, and monitor its progress through circularity indicators. The course will guide students in assessing the business value of circular economy cases. Students will also get deep understanding of considering the individual circular economy cases in a system perspective to get a full picture of environmental gains and/or losses.

LEARNING OUTCOMES

By the end of this course, you should:

Be able to

- Learn concepts and tools for developing circular economy models for business
- Plan and execute circular economy initiatives for small to medium size companies
- Analyze the circularity potential of a business case and measure success of circularity initiatives using different indicators

Acquire skills necessary for professional competence

- Demonstrate facility with disciplinary vocabulary
- Demonstrate facility with data and their manipulation
- Demonstrate ability to work in groups

ANNOUNCEMENTS

Your instructor uses the **Announcements** widget on the LEARN Course Home page during the term to communicate new or changing information regarding due dates, instructor absence, etc., as needed. You are expected to read the announcements on a regular basis.

To ensure you are viewing the complete list of announcements, you may need to click Show All Announcements.

READINGS

As there is no textbook for this course, all readings will be assigned during the term through LEARN. These readings come from a combination of peer-reviewed academic literature and ‘grey’ (not peer-reviewed) literature and web sites. Complete citations or web links will be provided for all readings. It will be demonstrated how to search on electronic journal databases to obtain readings in lecture.

COURSE COMPONENTS & ASSESSMENT

This course will be assessed based on three weekly discussion assignments & discussion participation portfolio, a quiz and a term-long group project. The weekly discussion will be based on respective week’s topic. The group project will be assessed through project proposal due by 11 June 2020, final report that is due by 23 July 2020, and a group presentation and evaluation on last lecture day.

Activities & Assignments	Weight
Three weekly discussion assignments + discussion participation portfolio	35% (10% each weekly discussion + 5% discussion participation portfolio)
Quiz	15%
Group project	Proposal 10%
	Final report 25%
	Presentation 10%
	Self and peer evaluation 5%

COURSE MATERIAL IS INTELLECTUAL PROPERTY FOR YOUR USE ONLY

All materials included in the course (e.g., PowerPoint slides) are made available digitally for your convenience, and are accessible through the LEARN course page. THIS IS NOT A RIGHT BUT A PRIVILEGE. Please note that the use of these materials is intended for students currently enrolled in ENBUS 375 only. Recording of the lectures (i.e. audio or video) is prohibited without the express written consent of the instructor. The distribution of PDF file, PowerPoint slides, or any other media, either to individuals or to third-party websites (e.g., CourseHero) is strictly prohibited. If there is any evidence that students have distributed said materials, the instructor will remove posted, and cease posting intellectual property (e.g., PowerPoint slides) online and may pursue disciplinary action against the students in question.

Class Schedule:*

*Lectures' schedule is subject to change depending on guest lecturer's availability.

Week	Date	Topic	Activities and Assignments
1	14 May, 2020	An introduction to Circular Economy	Introduce yourself
2	21 May, 2020	Circular Economy – schools of thought & strategies	1 st weekly discussion assignment
3	28 May, 2020	Preserving materials or products?	2 nd weekly discussion assignment
4	04 June, 2020	Circular economy strategies (cases & challenges)	Work on group project proposal
5	11 June, 2020	Circular economy: 3 case studies Guest lecture	3 rd weekly discussion assignment Submit group project proposal
6	18 June, 2020	Circular economy business models	Submit discussion participation portfolio
7	25 June, 2020	Barriers to circular economy	Work on group project
8	02 July, 2020	Virtual field trip (waste management facility)	Quiz
9	09 July 2020	Circular Economy initiatives in Canada	Work on group project
10	16 July, 2020	Tutorial	Work on group project
11	23 July 2020	Perspectives for future Product design: longer lasting products, biomimicry	Submit group project report (10 pages) Work on group project presentation
12	30 July, 2020	Presentation – Final project	Self and peer evaluation Course evaluation

Intellectual Property:

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

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. The University's guiding principles on academic integrity can be found here:

<http://uwaterloo.ca/academicintegrity/>

ENV students are strongly encouraged to review the material provided by the university's Academic Integrity office specifically for students:

<http://uwaterloo.ca/academicintegrity/Students/index.html>

Students are also expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Student who are unsure whether an action constitutes an offense, or who need 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. Students may also visit this webpage:

<https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academicintegrity-tutorial>

When misconduct has been found to have occurred, disciplinary penalties will be imposed under **Policy 71 – Student Discipline**. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline,

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to **Policy #70, Student Grievance**:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>

Note for students with disabilities:

AccessAbility Services (<https://uwaterloo.ca/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.

Coronavirus Information

Coronavirus Information for Students

This resource provides updated information on COVID-19 and guidance for accommodations due to COVID-19.

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 <http://www.uwaterloo.ca/counselling-services> is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

We understand that these circumstances can be troubling, and you may need to speak with someone for emotional support. [Good2Talk](#) is a post-secondary student helpline based in Ontario, Canada that is available to all students.

Religious Observances:

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. See 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.

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

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.

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.