



Winter 2024

Course Number	ARCH 672.31 L-04	Classroom	PF TBA
Course Name	Introduction to Industrial Ecology		
Pre/Co-Requisites			
Instructor	Dr. Getachew Assefa	Office Hours/Location	By appointment/Zoom
	Email: gassefa@ucalgary.ca		Phone: 403 616 1527
Class Dates	Monday, February 12 to Friday, February 16		
Instructor Email Policy	Please note that all course communications must occur through your @ucalgary email, and I will respond to emails sent via student's @ucalgary emails within 48 hours.		
Name and Email of Teaching Assistant(s)			

Course Description:

This course in Introduction to Industrial Ecology explores interactions of technical, economic, and social systems and processes with ecological systems and processes. It deals with how the industry in its broader term including urban systems and the entire industrial society of today at large would work in the future with significantly reduced impact on and interference with life-supporting ecosystems.

This course equips would-be architects, engineers, planners, business professionals, and designers with a systems perspective of understanding the implications of the different levels of decisions they make while practicing their profession and while acting as consumers.

The course is structured to be delivered through:

- Lectures
- Individual assignment
- Group project
- Reflection and In-Class discussion lab

Course Hours:3 units (2-1 Tutorial)

Course Learning Outcomes:

Upon completion of this course, students will know and be able to:

1. Describe and explain similarities and differences between a natural ecosystem and an industrial system
2. Describe and explain concept of industrial ecology (IE) in practice and research

3. Analyze industrial and urban cases from sustainability performance perspective and apply IE concepts in systems such as energy systems and natural resource management
4. Explain and analyze challenges and opportunities of IE in creating and operating sustainable urbanism/industry
5. Explain interactions between sustainable consumption and production within the framework of IE
6. Evaluate relevance of IE to practical project examples such as a material recycling and energy recovery facility

Learning Resources:

Required readings, textbooks and learning materials:

- peer-reviewed journal articles relevant for each component will be provided (refer to a separate **reading list**)

(NOT required) course textbook:

- Bourg, Erkman, Bourg, Dominique, and Erkman, Suren. Perspectives on Industrial Ecology. Sheffield, South Yorkshire, England: Greenleaf Pub., 2003. Web. Full Text Available Online Through the UofC Library
- Additional materials:
 - Ayres, R. U., & Ayres, L. (Eds.). (2002). A handbook of industrial ecology. Edward Elgar Publishing
 - Graedel, T. E., & Allenby, B. R. (2010). Industrial Ecology and Sustainable Engineering: International Edition (p. 425). Pearson Education Inc., Upper Saddle River, Prentice Hall

Technology requirements :

- D2L and Menti will be used as course platforms
- Most current laptops will have a built-in or external webcam, built-in or external speaker and microphone.
- Broadband internet connection

Assessment Components:

Assessment Method	Description	Weight	Aligned Course Learning Outcome
Quizzes: multiple choices	Five: for each student the best four will be taken for the final grades	20 (5X4)	All
Perspective assignment	Individual	20	All
Project	Group	45 (oral presentation 20,	All

		submitted files 25)	
Summary of and reflection on In-Class Discussion Lab	Individual	15	All

Assessment and Evaluation Information

Attendance and Participation Expectations:

All students are expected to attend and participate in the In-Class Discussion Lab, in project activities as groups. All group members are expected to participate in the group work and each member's specific contribution should be clearly documented.

Guidelines for Submitting Assignments:

Assignment should be submitted through D2L Dropbox before midnight of the deadline date.

Final Examinations:

There is no scheduled final exam for the course. Instead, there will be quizzes.

Expectations for Writing:

<https://www.ucalgary.ca/pubs/calendar/current/e-2.html>

written submissions should have a clear structure using headings, citation of sources when appropriate, written in single-spaced 12pts Times New Roman or equivalents (for Word document submissions) and clearly show the names of group members.

Late Assignments: 1 mark per day late will be deducted for each late submission of assignment.

Criteria that must be met to pass: there is no specific component that will be used as criteria. It is the overall performance that will determine the final score.

Grading Scale:

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies

C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

A student who receives a "C+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript.

The School of Architecture, Planning and Landscape will not permit the Flexible Grade Option (CG Grade) for any course offered by the School.

<https://www.ucalgary.ca/pubs/calendar/current/f-1-3.html>

Topic Areas & Detailed Class Schedule

Course Schedule Date	Topic	Assignments/Due Dates
Monday Feb 12	9:00-12:00pm L1: Anthroposystem: lessons from natural ecosystems	
	1:00-2:00pm: In-Class Discussion Lab	
	2:00-3:00pm: Project time	
Tuesday Feb 13	9:00am-10:30am L2: IE concepts and tools	Quiz 1
	2:00-3:00pm: Project time	
Wednesday Feb 14	9:00-12:00pm L3: Materials and IE: sustainable consumption and production	Quiz 2
	1:00-2:00pm: In-Class Discussion Lab	

	2:00-3:00pm: Project time	
Thursday Feb 15	9:00am-10:30am L4: Energy and IE	Quiz 3 Individual Assignment Submission
	2:00-3:00pm: Project time	
Friday Feb 16	9:00am-10:30am Project	Quiz 4 Individual Summary and Reflection Submission Project submission
	2:00-3:00pm: Project Presentation	

University of Calgary Policies and Supports

ACADEMIC ACCOMMODATION

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-accommodation-policy>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>. Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to their instructor (contact information on first page above).

SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.

ACADEMIC MISCONDUCT

Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

For information on the Student Academic Misconduct Policy and Procedure please visit: <https://www.ucalgary.ca/legal-services/university-policies-procedures/student-academic-misconduct-policy>

Additional information is available on the Academic Integrity Website at <https://ucalgary.ca/student-services/student-success/learning/academic-integrity>.

COPYRIGHT LEGISLATION:

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy>) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy (<https://www.ucalgary.ca/pubs/calendar/current/k.html>).

INSTRUCTOR INTELLECTUAL PROPERTY

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.

SEXUAL AND GENDER-BASED VIOLENCE POLICY

The University recognizes that all members of the University Community should be able to learn, work, teach and live in an environment where they are free from harassment, discrimination, and violence. The University of Calgary's sexual violence policy guides us in how we respond to incidents of sexual violence, including supports available to those who have experienced or witnessed sexual violence, or those who are alleged to have committed sexual violence. It provides clear response procedures and timelines, defines complex concepts, and addresses incidents that occur off-campus in certain circumstances. Please see the policy available at <https://www.ucalgary.ca/legal-services/university-policies-procedures/sexual-and-gender-based-violence-policy>.

UNIVERSITY STUDENT APPEALS OFFICE

If a student has a concern about a grade that they have received, they should refer to Section I of the Undergraduate Calendar (<https://www.ucalgary.ca/pubs/calendar/current/i-3.html>) which describes how to have a grade reappraised. In addition, the student should refer to the SAPL's Procedure for reappraisal of grades

OTHER IMPORTANT INFORMATION

Please visit the Registrar's website at: <https://www.ucalgary.ca/registrar/registration/course-outlines> for additional important information on the following:

- Wellness and Mental Health Resources
- Student Success
- Student Ombuds Office
- Student Union (SU) Information
- Graduate Students' Association (GSA) Information
- Emergency Evacuation/Assembly Points
- Safewalk