4Course Information:

Tuesdays 1430-1700, MSA 3204
Start date: 28 October 2025
End date: 2 December 2025
Remote (non-UWO) attendees can attend via Zoom. Note that in-person attendance is required for UWO students.

Prerequisites

This course has two requirements: a mobility and awareness corresponding to a passed CEDES Part 1 (CHEM 9659) course.

Mobility: A well-documented corrosion research and training experience (CRTE) mobility, or equivalent, is required prior to enrolment in this course. Equivalent experiences are MITACS- or ASPIRE- or equivalent funded research experiences abroad, in a non-academic setting (e.g., in an Indigenous community, municipality, non-for-profit organization, hospital, or industry), or a different discipline.

CHEM 9659 or equivalent: This course is a follow-up course of Corrosion, Equity, Diversity, Environment, and Society (CEDES) Part 1. Either CEDES Part 1 is required or an awareness of the documentation requirements for this course (CEDES Part 2) prior to, or during, the mobility, so that required documentation can be conducted during the mobility.

Enrollment:

To be capped at 15 students

1. Instructor Information:

Dr. Yolanda Hedberg
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2. Course Description:

The main objective of the course is to provide a societal and environmental context to the global field of corrosion science and engineering.

Course content:

This course will elaborate on material-ethical questions, such as how corrosion and materials engineering have impacted different Indigenous communities globally and how corrosion products from recycling and industrial waste affect public health in the Global South, by using the student's international and intersectoral experience and documentation (from their mobilities) in a trainee-centred seminar.

Learning objectives:

1. Present a well-documented case of societal or environmental aspects of corrosion, corrosion protection, or corrosion-induced failures/impacts from a corrosion science experience, such as another country.
2. Link common cases, such as increased corrosion-induced environmental pollution in Indigenous communities, across countries and mobility experiences.
3. Discuss mitigation methods, such as legal, education, or engineering methods.
4. Prepare a business case on corrosion protection considering societal and environmental aspects.

Seminars

This course is a trainee-led seminar course and graded with pass/fail. There are two assignments, which are presented and discussed in the classroom. The length of the presentations and discussions depends on the number of total enrolled students in this course. During the first session, each student will schedule their two sessions.

Course Materials:

An electronic copy of the course materials will be provided.

- Leygraf et al., 2016. Chapter 10: Environmental Dispersion of Metals from Corroded Outdoor Constructions. In Atmospheric Corrosion, 2016. On Brightspace.
- Chen & Thyssen, Eds., 2018. Metal allergy - from dermatitis to implant and device failure. Springer International Publishing, Cham, Switzerland. https://link.springer.com/book/10.1007/978-3-319-58503-1
- Eisler, 2004. Mercury hazards from gold mining to humans, plants, and animals. https://pubmed.ncbi.nlm.nih.gov/14738199/
- Arsenic trioxide and underground issues at Giant Mine. https://www.rcaanc-cirnac.gc.ca/eng/1100100027413/1617999134934
- UN-SDGs at https://sdgs.un.org/goals
- Ferroukhi, García-Baños López, & Baruah, 2021. Chapter: Global trends in women's employment in renewable energy. On Brightspace.
- Global education monitoring report 2022: Gender report, deepening the debate on those still left behind. https://unesdoc.unesco.org/ark:/48223/pf0000381329
- New UNESCO and IEA brief: Missing out on half the world's potential in mathematics and science. https://www.unesco.org/en/articles/new-unesco-and-iea-brief-missing-out-half-worlds-potential-mathematics-and-science
- Maatookiiying gaa-miinigoowiziying (Sharing Our Gifts). https://indigenous.uwo.ca/initiatives/learning/indigenous_learning_bundles.html
- Canadian Commission for UNESCO (2021). Land as teacher: understanding Indigenous land-based education. https://en.ccunesco.ca/idealab/indigenous-land-based-education
- Fullerton (2021). Indigenous education: Land as text. BU Journal of Graduate Studies in Education, 13(2). https://files.eric.ed.gov/fulltext/EJ1304405.pdf
- Neeganagwedgin, E. (2022). Indigenous Science Knowledge and Epistemologies in Practice: Living Everyday Research. Journal of Indigenous Social Development, 11(1), 145-158. https://journalhosting.ucalgary.ca/index.php/jisd/article/view/73893

- Wildcat, M., Mcdonald, M., Irlbacher-Fox, S., & Coulthard, G. (2014). Learning from the land: Indigenous land-based pedagogy and decolonization. https://nycstandswithstandingrock.files.wordpress.com/2016/10/wildcat-et-al-2014.pdf
- Weenie, A. (2009) First Nations Perspectives. First Nations University of Canada. 2, 1: pp.57-70. https://mfnerc.org/wp-content/uploads/2012/11/007_Weenie.pdf
- National Centre for Collaboration in Indigenous Education (2020). Introduction to Land-Based Education. https://www.youtube.com/watch?v=4F6hg8uwZuQ

5. Methods of Evaluation:

This course is evaluated through two assignments, which have to be partially prepared during the mobilities prior to this course. This course is trainee-centered and will be graded by pass/fail. Length of presentations, discussions, and sessions assigned to each student are dependent on the total number of enrolled students.

Course Weight	Element	Description	Due Date
45%	Assignment 1	A presentation on your mobility, outlining: ○ Purpose ○ Location and field ○ Content and opportunities ○ What you learned and what you taught (if applicable) ○ Similarities and differences to your home university or discipline Please make pictures and notes during your mobility to prepare for this presentation.	When assigned
45%	Assignment 2	A presentation on the influence on corrosion, equity, diversity, environment, and society in the context of your mobility: a. Which groups are traditionally and presently marginalized in your host country/location/discipline? b. After talking to your hosts, did you notice any different treatments, arguments, intolerances, or tolerances towards certain groups, such as certain religions, genders, racialized groups, persons with disabilities, or Indigenous peoples, as compared to your home location? If so, are there historic reasons for that difference or did the organization/government take certain actions to either discriminate or tolerate certain groups? c. How is corrosion and materials science connected with political issues, such as exploration of lands, mining, pollution due to manufacturing sites, for your host country or organization? Are Indigenous peoples affected and if so, which? d. If you would be a leader in this field or country in future, how would you solve any technical, environmental, or business issues that result in inequality and exclusion of certain groups?	When assigned
10%	Participation and professionalism	Based on attendance, preparation, participation in class, engagement, professionalism. See Appendix A.	ongoing

Students should publish their coursework (one summary video or two separate videos) at https://ir.lib.uwo.ca/nserc_create_sci_institute/

Course attendance and missed/late assignments

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.

Statement on the Use of Generative Artificial Intelligence (AI)

The use of generative artificial intelligence (AI) tools/software/apps is acceptable if it is used responsible. It is the student's responsibility to ensure accuracy of any suggested text, references, or cases that any AI tools contribute. It is suggested that AI tools are not used for historical, political, or technical guidance without any fact-checking. Each AI-suggested fact has to be fact-checked down to the initial source of information. Use rigorous citations and always go back to the root source of information, as citation errors are common in the literature and media.

6. **Statement on Academic Offences:**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf.

7. **Statement on Gender-Based and Sexual Violence:**

Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who is going through or has gone through these traumatic events. If you are experiencing or have experienced GBSV (either recently or in the past), you will find information about support services for survivors, including emergency contacts at the following website: https://www.uwo.ca/health/student_support/survivor_support/get-help.html To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Appendix A: Professionalism & Participation Rubric

Category/Criteria	Fail	Pass
Class Session Contributions and Responsibilities	• Participates limitedly • Demonstrates limited focus on class activities • Offers support & feedback to peers occasionally • Demonstrates poor understanding of the topics being discussed • Respects the opinions of others limitedly • Demonstrates a limited level of active listening • Fails to notify Instructor of absences and requests to leave early • Attends classes rarely (excused with notification or documentation as required) • Demonstrates limited punctuality • Avoids assisting in classroom	• Participates highly • Demonstrates consistent focus on class activities • Offers support & feedback to peers consistently • Demonstrates exceptional understanding of the topics being discussed • Encourages respect amongst the group • Demonstrates an exceptional level of active listening • Consistently notifies Instructor of absences and requests to leave early • Attends classes consistently (excused with notification or documentation as required) • Demonstrates consistent punctuality • Assists in classroom consistently

Developed by Dr. Isha DeCoito