CCE 623 – Corrosion of Metals and Corrosion Control
Winter 2018 (4 Credits)

Times: TBD (Location: TBD)

Lectures: 2 lectures at 120 min.

Instructor: O. Burkan Isgor
Office: Owen 302
Phone: 541-737-8537
Email: burkan.isgor@oregonstate.edu
Web: http://web.engr.oregonstate.edu/~isgor/

Office Hours: TBD; open-door policy; or by appointment.


Prerequisites: Undergraduate level chemistry and/or materials science courses

Textbook: Principles and Prevention of Corrosion, 2/E
Denny A. Jones, University of Nevada, Reno

Reading List: Additional articles will be provided during the term.

Course Webpage: You will need an ONID account for the Canvas page.

Topics:
- Introduction to Corrosion
- Cost of Corrosion
- Forms of Corrosion
- Corrosion Thermodynamics
- Passivity
- Corrosion Kinetics
• Measurement of Corrosion
• Corrosion Control and Protection

Important Dates:
TBD: Finalize paper topic
TBD: Midterm exam
Dead Week: Presentations
TBD: Final paper due

Course Learning Outcomes:
At the end of this course, all students should be able to:
1. Distinguish the cost of corrosion in their respective fields of practice
2. Recognize that corrosion must be part of the design process
3. Identify different forms of corrosion
4. Identify material-environment combinations that increase corrosion risk
5. Use mixed potential theory to predict and measure corrosion
6. Identify and assess corrosion mitigation and control strategies.

Grading:
Assignments: 40%
Midterm Exam: 30%
Short Paper: 20%
Presentation: 10%

Assignments:
Homework assignments is due the following week after assignment if it is not stated otherwise. Late homework will not be accepted without valid excuse. Weekly reading assignments must be completed before each lecture.

Short Paper:
Students will be asked to prepare a short paper (5 pages – single spaced excluding figures, tables, and references) on a topic related to corrosion of metals in concrete. Details on the format of the paper will be provided separately. Possible papers can be in the form of (a) the review of a specific corrosion problem in a given sector, (b) a case study, (c) a topic that might be related to student’s research, (d) the review of a corrosion mitigation or control procedure, (e) literature review on a specific topic, (f) any other topic that may be decided after a discussion with the instructor. The papers will be presented during the dead week. Details for the presentation format will be provided.

Examinations:
The course will include a midterm examination. The exam must be taken as scheduled.

Class Attendance:
Attendance is mandatory. You are expected to attend every class and participate. If you are
unable to attend for a good reason, notify the instructor before that class. If you do miss class, it is your responsibility to find out from another student what was covered and any administrative information presented.

**Student Conduct:**
It is expected that students know and will abide by the CCE Honor Code posted at: [http://cce.oregonstate.edu/node/257](http://cce.oregonstate.edu/node/257). Two other documents are posted at the website above: CCE as a Professional Community and the Student Code of Conduct. You are also expected to know and abide by these conducting yourself in an according manner.

**Academic Integrity:**
Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student’s own efforts or the efforts of another. It includes:

- **cheating** - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.
- **fabrication** - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.
- **assisting** - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).
- **tampering** - altering or interfering with evaluation instruments or documents.
- **plagiarism** - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one’s own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and submitting it as one's own.

For more information about academic integrity and the University's policies and procedures in this area, visit the Student Conduct web site: [http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf](http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf)

**Disruptive Behavior:**
Students are expected to maintain an appropriate learning environment in the classroom. Students have a responsibility to treat each other with dignity and respect. Examples of disruptive behaviors include: being late, reading the paper, sleeping during class, making noises, repeatedly interrupting, passing notes, answering cell phone, harassing behavior, and inappropriate
language. Disruptive behavior will not be tolerated and will impact the class participation portion of the final grade. The golden rule applies here.

**Disabled Student Assistance:**
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at [http://ds.oregonstate.edu](http://ds.oregonstate.edu). DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.