

Draft: CH695 External Graduate Internship

I. Course Identity, Teaching Staff, and Logistics

Instructor: Center for Electrochemistry faculty or staff, email: swb@uoregon.edu, office: 435 LISB, Phone: 541-346-2543

Office hour: Appointments (in person, on the phone, or via video conferencing) with the instructor of record, or other internship program faculty/staff, are available upon request.

Format: Laboratory and team-based learning in an industrial or national laboratory research and development setting.

Credit Range: 1 – 10

The credit hours will be assigned as follows. A full-time internship, equivalent to ~40 h/week, will be assigned 10 credits. A half-time internship, equivalent to ~20 h/week, will be assigned 5 credits. Thus each credit of internship requires a commitment of ~4h/week to an internship opportunity. It is anticipated that most students will perform full-time internships and earn 10 cr. per term.

Location: The student will be required to be onsite at the internship location, which will typically be an industrial research and development facility or a national laboratory. The location could be anywhere in the world, although most are anticipated to be in the USA. Students are able to search and apply for internship opportunities, with faculty/staff guidance, in areas of geographic preference.

Required course materials: The internship mentor will provide training materials and readings (literature articles, books, operation manuals, standard operating procedure documents, etc.) that the internship student will be asked to study during the course of the internship. These materials may be supplemented by additional material, for example from the scientific literature, by the instructor of record for the course.

Course website: A Canvas course site will be created to contain any relevant course documents, including the syllabus and required/suggested readings from the instructor of record. The final paper will also be uploaded through the canvas site.

Conditions for Repeating the Internship Course for Credit: To repeat the course, students must meet two requirements. First, they must have demonstrated sufficient professional and technical competence in the internship workplace to merit another internship opportunity, as judged by the instructor of record. Second, they must demonstrate progress in the internship such that the repeated internship course does not cover the same material as in the previous internship. This is usually demonstrated by internship project progress demonstrating that the

student is tackling more-advanced aspects of the project or a new project, and is taking more responsibility in the internship. This will be assessed by the internship instructor of record.

II. Course Description

Internships are off-campus experiential learning activities designed to provide students with opportunities to make connections between the theory and practice of academic study and the practical application of that study in a professional environment (for example in an industry research and development setting or national laboratory – in rare cases the internship could take place in an academic research laboratory that meets the guidelines in this document). Internships offer students the opportunity to “try out” a career/job while gaining relevant experience and professional connections. Internships are completed under the guidance of an on-site supervisor and an academic sponsor (the instructor of record), who in combination with the student will create a framework for learning and professional development. These internship experiences are expected to be paid and the student is expected to contribute substantially to the internship site goals, as well as further their education.

III. Expected Learning Outcomes

- Develop professional skills needed to interact with colleagues and succeed in a research and development setting
- Elevate project planning and management skills needed to complete applied research and development projects
- Elevate presentation and speaking skills necessary to communicate internship findings within the industry/national-laboratory setting as well as to the instructor of record
- Learn to apply foundational course concepts to solving problems in industry or national laboratory research and development settings
- Develop deep understanding of specific problem/process being worked on
- Learn to find, assess, and communicate data to drive decision making in a professional collaborative manner

IV. Estimated Student Workload

The specific activities undertaken by internship participants will vary substantially based on the exact internship placement. All students will be required to submit a substantial final term paper related to their internship work. They will also be required to facilitate and host a site visit, either in person or via video conferencing. The table below shows the estimated workload based on reasonable internship expectations (assuming an 11 week term).

Activity	Estimated hours per term	Comments
Preparation for and attending meetings with site sponsor and	55	5 h/week, 2.5 in meetings, 2.5 in preparation

Activity	Estimated hours per term	Comments
other employees at the internship site.		
R&D laboratory work	385	Estimated at 7 h / day
Readings and study of concepts related to internship	60	6 h / week
Final internship paper	20	High quality report with professional figures, as described below
Site visit hosting	4	Prepare for and host site visit
Total hours:	524	~ 48 hours per week of internship work and study

V. How Grades Will Be Determined

The internship course will be graded on a pass/no-pass basis. The instructor of record will be responsible for grade determination. This will be accomplished by assessment of the final report document.

The final report document will be due Wednesday of finals week at the end of the quarter. A pdf document should be submitted to the course canvas site under the appropriate assignment. Note that this submission will be checked for plagiarism with VeriCite. The pdf document should be named according to the following format:

Last Name_First Name_Track_Term_Year.pdf

where "Track" refers to the Masters Internship Program Track the student is part of (e.g. electrochemistry)

Formatting. The document must be formatted into the American Institute of Physics (AIP) / *Journal of Applied Physics* journal format as described on the AIP website at <https://publishing.aip.org/authors/preparing-your-manuscript>. After navigating to this page, note the links on the side to sample manuscripts where a Word example for a *Journal of Applied Physics* submission can be found. For Latex, the REVTeX4.1 package is used. Within the AIP/Journal of Applied Physics format, your document can be divided into appropriate sections. An example for an experimentally based paper would be: Abstract, Introduction (Background), Experimental, Results \& Discussion and Conclusions (Summary). An example for a technology-review-based paper would be: Abstract, Introduction, Current State of the Art Technology, and Future Directions.

Content. Your report should either be a report directly on your internship activities or a substantial literature / technology review of a topic related to those activities. The manuscript should be in the range of four to six (4-6) pages when written in 10-point font, *single-spaced*. This does NOT include the space required for the title, author list, references, abstract or figures. Figures and graphs are to be made by the author and should be relevant to the text. The one exception are figures showing data or results from another source, *and they must be cited*. Figures are to be labeled, have appropriate captions and should be referenced in the body of the text (ideally prior to appearing in the flow of the article). The manuscript should be composed in a technical writing style with proper grammar and punctuation. The *quality of the content* is much more important than the quantity of the text.

Content should be appropriately referenced with peer-reviewed journal articles or textbooks. Use the reference method described for AIP/ *Journal of Applied Physics* (note the word template has examples). If content is commonly known (i.e. available in undergraduate level textbooks), a reference is not needed. While there are exceptions to the rule, websites should generally not be referenced (i.e. Wikipedia). A well-researched document of this type will generally have at least 10 references.

DO NOT DISCLOSE CONFIDENTIAL INFORMATION. Your supervisor must approve the topic and content of your manuscript prior to submission. We highly recommend you discuss the topic/content with your supervisor before you begin preparing your document. This will ensure you do not waste efforts on a manuscript that cannot be publicly disclosed due to confidential content. Ideally these internship reports are a part of your portfolio that you can share during evaluations.

Gain approval from management prior to writing your document. If your document is heavily redacted by the host company, it will not be accepted as a term paper and you will receive an incomplete. Be sure to put your name on the first page of the report (author list) and put page numbers on each page.

Grading rubric for report:

To receive a passing grade, the report must meet expectations in all areas.

	Criteria for Meeting Expectations
Technical Content	Report includes accurate and sufficient technical information and discussions reflecting a graduate level mastery of technical concepts and/or work performed during the internship. Graduate level mastery is defined in terms of the standard set by peer-reviewed scientific publications in the technical field of the graduate program.
Graphics/Figures	Graphics and Figures are prepared by the author, technically correct, annotated with Figure captions, well integrated into the text, and prepared according to professional standards within the field of graduate study.
Organization	Report has a logical sequencing of information that is easy to navigate and

	well-structured paragraphs.
Mechanics	Sentences are well written with proper word choice, and the text is nearly free of errors in grammar, punctuation and spelling.
Formatting	Document is formatted according to guidelines given.

Academic Honesty in Internship Report. Academic dishonesty in any form will not be tolerated. All work submitted must be your own and produced exclusively for this report. The work you submit should be your own; however, there will be times when you will want to incorporate the work of others, such as information in a textbook or other literature sources. When doing so, it is required that you properly credit your sources. When using source material verbatim, the material should appear in quotation marks and be properly referenced. Close paraphrasing is not permitted; direct quotations or original descriptions are required. If you have any doubts about the proper citing of reference material, please ask. Note that we keep reports from our alumni and will be able to detect if you have plagiarized from past student reports or other sources. If you plagiarize a report, you will receive a failing grade and be reported to the Office of Student Conduct.

VI. Course Schedule and Assignments

The schedule of any given internship will vary substantially based on the site, project, and specific field. A site visit / video conference will occur during week 5 of the term. The meeting can be moved with prior approval to meet scheduling constraints. The final paper will be due Wednesday of finals week.

VII. Roles & Responsibilities

Sites for student internships are expected to be small-to-large sized companies engaged in technology-related research and development where students can participate in technical and professional skills development in their field. Some internships will be also in national laboratories or other research laboratories. The instructor of record will be responsible for ensuring internship sites have the appropriate infrastructure to support internship students.

Intern

- Communication with site supervisor regarding objectives and site supervisor deliverables
- Adheres to professional work standards including: regular attendance, punctuality, working within agreed upon hours, wearing appropriate attire, adhering strictly to all safety standards, and abiding by all code of conduct policies
- Completion of agreed upon course assignments while meeting professional work obligations

Site Supervisor

- Provide site information including employee handbook, any code of conduct information, as well as technical information (internal documents, articles, books, manuals, etc.) needed to succeed in internship
- Set forth expectations for the work to be completed and associated timelines
- Establish preferred method and frequency of communication with intern
- Identify opportunities for intern to meet learning objectives
- Introduce intern to key people (other staff, vendors, managers, executives) who can assist intern with their professional development and become part of their network
- Oversee work
- Conduct evaluation(s) and share performance feedback and skills development needs with intern

Instructor of Record

- Approve, oversee, and grade academic internship report
- Serve as primary contact for Site Supervisor regarding concerns with student performance.
- Help intern to get the most from their experience through regular check-ins with intern, including one formal site visit / video conference
- Submit final grade for internship

VIII. Intellectual Property and Confidentiality

Internship student may work on confidential projects and their work may result in intellectual property. Because the intern will be employed by the host company or national laboratory, all intellectual property developed during the internship will remain the sole property of the internship host and will be handled according to the policy set for by the internship host site. Confidential or sensitive technical information should not be shared with the instructor of record, although sufficient evidence of student academic progress must be provided during the site interview(s) and formal internship report document. Students may be asked to sign confidentiality and/or non-disclosure forms by the internship host, pursuant to the employee policy of the internship host. Students are encouraged to discuss these policies with their internship host prior to accepting internship offers.

IX. Course Policies

- Late or missed work will not generally be accepted without prior approval.
- There will be a zero-tolerance policy for plagiarism in the internship report term paper
- **Academic Misconduct:** The University Student Conduct Code (available at con-

duct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at <https://researchguides.uoregon.edu/citing-plagiarism>.

- **Accessibility:** The University of Oregon is working to create inclusive learning environments. Please notify the instructor if there are aspects of this course that result in disability related barriers to your participation. For more information or assistance, you are also encouraged to contact the Accessible Education Center, Suite 360 Oregon Hall, 346-1155 or uoaec@uoregon.edu; website: <http://aec.uoregon.edu/content/about>
- **Addressing issues that may arise during the internship:** If serious issues develop during the internship that result in the internship site no longer being appropriate for the academic and professional development of the student, the student must immediately contact the instructor of record. The instructor of record will discuss the issues with the student and, as appropriate, develop a plan with the Site Sponsor to address the issues. In some cases the Instructor of Record may need to work with student to find an alternative internship placement or allow the student to complete the remainder of their internship in an academic research laboratory.