NORTHERN ARIZONA UNIVERSITY
School of Earth and Sustainability

ENV 408-INTERNSHIP or FIELDWORK EXPERIENCE
ENV 485-UNDERGRADUATE RESEARCH
Spring 2020

COORDINATOR
Dr. Taylor Joyal
Office: Physical Sciences 100
E-mail: Taylor.Joyal@nau.edu

OBJECTIVES
The School of Earth Sciences and Environmental Sustainability (SES) is committed to the practical education of all its Environmental Sciences and Environmental & Sustainability Studies majors and our Environmental Sciences minors. To address the educational needs and ambitions of all its undergraduates, every undergraduate major is required to participate in a supervised internship, fieldwork experience, or supervised research project. Several terms are commonly used to describe this activity such as practicum, internship, externship, cooperative education, field study, or field placement experience. Here is how we define them:

ENV 408 is the internship requirement for Environmental Sciences majors and minors and for Environmental & Sustainability Studies majors. An internship combines theoretical/work experience in a non-academic setting (off-campus or on-campus) in an appropriate agency or organization. Supervision is provided for the student at the place of assignment by a designated on-site supervisor. This course is designed as supervised fieldwork.

The goal of ENV 408 is to prepare you to enter the field of your choice and assist you in refining and developing your professional skills. In addition, the fieldwork experience should guide you as you choose a profession after graduation. In fact, the experience may teach you that you would like a career in another capacity or in a related field, rather than that of their internship. Intrinsic to these goals are the expectations that you will receive the broadest possible experience with the organization. The fieldwork should occur after ENV 301W or ENV 360 and preferably early enough for you to take classes in the senior year that may be relevant or necessary for a comprehensive education appropriate for your internship field.

Credits: 1-6, **usually 3**
IMPORTANT → 3 cr requires a commitment of 150 hours, fully documented and signed off by your internship supervisor; 6 cr requires 300 hours, etc.
Meeting Time: Arranged per student.
There is **NO** formal class meeting.

ENV 485 is the Research Project requirement for Environmental Sciences majors and minors, and for Environmental & Sustainability Studies majors. It is an application of accepted research techniques to answer a proposed hypothesis or question within the undergraduate's field. Supervision is provided for the student by an accredited university professor, researcher or professional in the field. This course provides NAU credit for original research you conduct under the supervision of a researcher in your field.

You may plan a research project with a faculty member who is not in SES; that is usually acceptable for ENV 485 credit. You should discuss with your supervisor how to register for 485, in ENV or preferably in the department to which that faculty member belongs, so that she/he can receive credit for advising you.

The goal of ENV 485 is to introduce you to the planning, implementation and interpretation of original research in your field of your choice. The research project should assist you in refining your focus on a particular discipline or study area and on professional choices. Intrinsic to this goal is the expectation that you will receive the broadest possible experience with the cooperating faculty research supervisor, but we do recognize that the very nature of research is focused and specialized. This research should be original. Your work must be able to reasonably stand alone with a hypothesis to be tested or make a significant contribution to the project. Naturally, your supervisor may plan to use your data and your work may contribute to their larger research agenda. However, **YOU MAY NOT** simply be a lab technician.

Credits: 1-6, **usually 3**
IMPORTANT → 3 cr requires a commitment of 150 hours, fully documented and signed off by your advisor; 6 cr requires 300 hours, etc.
Meeting Time: Arranged per student.
There is **NO** formal class meeting.

ALL INTERNSHIP, FIELDWORK EXPERIENCE, OR UNDERGRADUATE RESEARCH MUST HAVE PRIOR APPROVAL. You may not request credit for previous projects, life experiences, simply working, or simply enrolling in a course. However, **with prior approval**, you may combine your internship experience with work and/or receive a salary. Or, you may with prior approval, use a field studies-research course as your internship. The fieldwork or research you conduct would normally occur after you complete ENV 360 (sciences) or ENV 301W (sustainability studies) and preferably early enough for you to take classes in the senior year that you or your supervisor deem relevant or necessary.

LEARNING OUTCOMES FOR ENV 408/485

1) To link your academic training to a professional environment in which you construct a link between your academic training and practical application of that coursework.
2) Prepare for a professional career and active citizenship by engaging in a project consistent with your educational and professional goals.
3) Direct your personal and professional growth by integrating intellectual, professional, and personal development.
4) Demonstrate an overall knowledge and application of concepts related to Environmental Sciences or Environmental & Sustainability Studies in a professional setting and/or demonstrate the ability to conduct research in a professional setting.
5) Accumulate a professional experience with sufficient detail to utilize in the activities required by the senior capstone, ENV 490C.

ASSESSMENT METHODS

1) Evaluation and comments from site supervisors on mid-term and final evaluations
2) Supervisor signed hourly log/journal documenting your 150 hours of work (for 3 credits)
3) 10-page final paper or portfolio

PROCEDURE TO SIGN UP FOR 408/485

1) For ENV 408, identify a potential organization that you may want to work with. For ENV 485, identify a professor or researcher on campus that mentors undergraduate research in a field that interests you. In either case, meet with the internship or research coordinator to brainstorm possible options before writing a project proposal. The relationship between hours worked and the credits received is based on a minimum of 50 hours for each internship credit. This translates into a minimum of 150 hours for the three-credit course AND one 10-page report of at least A, B, or C letter grade quality. Two credits would be earned by a 100-hour internship or fieldwork and an 8-page paper of at least A, B, or C letter grade quality. Fieldwork may be repeated up to a total of 300 hours with a maximum of 6 credits per semester, with internship coordinator approval.
2) **COMMUNICATE WITH THE INTERNSHIP COORDINATOR (Dr. TAYLOR JOYAL) TO DETERMINE IF THIS INTERNSHIP OR RESEARCH IS APPROPRIATE.**
3) Determine and write up your **Learning Objectives** in concert with your supervisor and the internship or research coordinator. What do you expect to learn or experience during your internship or research? To begin writing Learning Objectives, first describe the job/research environment. What is the name of the organization or researcher with whom you will work? What do they do? Who will be your supervisor/mentor guiding your experience?
4) Next, think about what you want to gain from this experience. Do you want to learn new programming techniques? Do you want to discover new ways to enhance web pages? Do you want to understand what is involved in publicity, educational, or fund raising efforts for a non-profit group? Do you want to learn how this particular organization implements a new policy? If a research project, what are your hypotheses and how will you test them. Use this list to develop at least three Learning Objectives.
5) Finally, list the tasks you will perform that lead to the accomplishment of each Learning Objective. List the contributions you will expect of your supervisor/mentor in guiding you in the performance of your tasks.
6) Write up a **Project Proposal** of your internship or research experience including 1) a several paragraph description that describes what you plan to do, 2) your learning objectives, 3) your tasks, and 4) the accomplishments you plan to complete by the end of your internship. Submit your proposal to the ENV408/485 Internship/Research faculty coordinator (Dr. Joyal) for approval and to obtain permission to enroll in the course. After approval by Dr. Joyal, have your project supervisor OK this project with a signature on the **Enrollment Request/Supervisor form** and email it to Dr. Joyal.
7) **Remember to sign up for the appropriate number of credits (default in Louie is only 1).**
8) ***Once enrolled, log in to the BbLearn Course Shell for critical deadlines, assignment drop boxes, and other course expectations.***
9) If the sponsor is outside NAU, and there is not an existing Affiliation Agreement, you will need to have you sponsor fill out this form as well.

REQUIREMENTS TO COMPLETE 408/485

1) Be certain that your signed project proposal has been submitted and approved by Dr. Joyal.
2) A mid-internship evaluation using the evaluation form (posted on the BbLearn course page) completed and **signed** by your project supervisor Friday, March 13th, 2020.
3) A final letter of reference or evaluation **written and signed** by your project supervisor at the completion of your project uploaded to the ENV 408/485 BbLearn Course page by Wednesday, May 6th, 2020.
4) A journal, lab book or hourly log **signed** by your internship/research supervisor that documents your activities (entries may be daily or summarize 2-3 days) and verifies your total hours worked (e.g. 150 hours for 3 credits). You can use an electronic spreadsheet format such as Microsoft Excel to list your weekly hours and tasks completely. This will help you when compiling your final product (see #5 below) and will allow you to upload the log to BbLearn. Your log should be submitted by Wednesday, May 6th, 2020.
5) And, most importantly, **EITHER:**
    a. A 10-page paper that describes the research or internship – **required for ENV 485 research projects**. There is not a strict rubric since internships are quite different among students. However, research projects should follow the standard Introduction—Methods—Results—Discussion format. The paper should include a literature review of pertinent information. What science supports your work? If you are guided by federal legislation or responding to legislation then cite it. If you are assessing animal or plant populations, cite the literature describing the species and use organization documentation. Include a description of your experience with some background on the organization and its employees (qualifications, education, experience), an informal reflection on your experience, and an analysis of the experience and recommendations for other interns. This must be uploaded to the BbLearn course page by Wednesday, May 6th, 2020.
    b. **OR for ENV 408 internships only IF the paper option is not suitable to report the full scope of your work,** a portfolio presentation that will document your internship accomplishments and supply information for prospective employers. A document outlining the guidelines for portfolios can be found on BbLearn. Include a description of your experience with some background on the organization and its employees (qualifications, education, experience), examples of work you completed, an informal reflection on your experience, and an analysis of the experience and recommendations for other interns. Do not include your proposal, hourly log, or final reference letter in your portfolio – those are submitted separately. This must be uploaded by Wednesday, May 6th, 2020.

    Overall, think of your paper or portfolio as a product you would be proud to show a potential employer in the future to convey the scope of work you completed during your internship or research experience.
6) **NOTE:** Each student is required to read and comply with **NAU policies** posted at https://policy.nau.edu/policy/policy.aspx?num=100601

AFTER YOUR INTERNSHIP OR RESEARCH EXPERIENCE

One of the objectives of your internship or research project is to prepare yourself for ENV 490C the capstone experience. In the capstone you will give an oral presentation describing the following aspects of your work:

- Background or scientific introduction
- Statement of problem/hypothesis or learning objectives/outcomes
- Methods or duties/activities
- Results, deliverables or accomplishments
- Discussion, recommendations or implications of what you did

ADDITIONAL INFORMATION

1. **Financial Reimbursement**

The primary reason for participating in an internship/research project is to apply academic knowledge in a practical setting. It is recognized that in certain situations, students will be paid. In such situations, the contract/proposal for academic credit is between the student and the department; the contract for work and compensation is between the student and the work site. Regardless of whether the student receives compensation, the student is not considered an employee of either NAU or the experience site by virtue of the internship agreement *alone*. Students seeking academic credit while working in an existing place of employment should demonstrate that their activity goes beyond that required in the regular requirements for the job, documented in the student contract/proposal.

2. **Supervision and Grading**

All students must identify a faculty member or environmental/sustainability professional who will agree to supervise their internship, and who will coordinate work site and academic components of the internship with the SES internship coordinator (Dr. Joyal). The coordinator may periodically conduct on-site visits and/or telephone contact with work site supervisors. Since academic credit is awarded for internship experience, the supervising faculty member will review the supervisor's evaluation, the student hourly log and a final written report (approximately 10 pages in length and at least a "C" quality paper) or portfolio. The course grade is based on both the work experience and the written component related to the work; grading in fieldwork is Pass/Fail.

3. **Student Documentation**

THE STUDENT IS RESPONSIBLE FOR OBTAINING WRITTEN APPROVAL FROM THE SUPERVISOR AND THE INTERNSHIP COORDINATOR (Dr. Taylor Joyal) BEFORE STARTING THE EXPERIENCE. The student and the work site coordinator will develop a plan for the work to be carried our as part of the internship or research, including specific goals for the experience. The student is responsible for keeping a record that details the date and time spent at the work site in order to fulfill the necessary credit requirements.

4. **Workplace Requirements**

In general, students enrolled in an internship or research must meet the same workplace requirements as employees as long as these are legal requirements. The Internship or research coordinator will work with the student, the supervising faculty member or the work site supervisor whenever there are questions of policy or responsibilities associated with the internship.

5. **Contract/Registration Form**

All arrangements with agencies and groups for internship credit must be documented in the form of a registration form (on the website), reviewed and signed by the Internship Coordinator, and the supervising faculty member or work site supervisor, and the student.