FISH 499 SENIOR THESIS
FALL, SPRING, AND SUMMER SEMESTER 2021-22

Instructor/Office Hours
Faculty/TBA

Meeting Location and Time
N/A

Course Credits
2 credits (for letter grade)

Contact Hours
Time spent with the faculty mentor in individual instruction will vary depending on the student's progress on the thesis proposal; however, at least 80 hours of supervised scholarly activity most occur during the semester to complete a senior thesis proposal.

Course Prerequisites
Fisheries major with senior standing and a GPA of 3.2 or higher. Permission of a CFOS faculty mentor and the CFOS Internship Coordinator (the coordinator may also be a mentor). FISH 498. Recommended Courses: FISH 315 or 414, MSL 394 or 450, or STAT 401 or STAT 402.

Course Description
Under the supervision and mentorship of a CFOS faculty member, students will complete the second part of a year-long, self-designed scholarly project that is the capstone of a student's exemplary academic performance in the Bachelor of Science in Fisheries and Ocean Sciences or Bachelor of Arts in Fisheries degree programs. For this component of senior thesis (FISH 499 Senior Thesis Project), the student will complete analysis of field and/or laboratory data collected during FISH 498 Senior Thesis Proposal and develop a research paper/manuscript that will interpret the study results and cast them within the context of the existing literature relevant to the study topic. Students will be expected to work with their senior thesis mentor to submit the manuscript for peer review to a scientific journal. In addition, students will be required to present the results of their study at the CFOS Undergraduate Internship Symposium, UAF Research Day, and at a student subunit, state, or national American Fisheries Society (AFS) meeting. Participation in this program will count towards the Experiential Learning requirement for either the CFOS B.S. or B.A. degree programs.

Course Goal and Student Learning Objectives
Hands-on research provides undergraduate students with an opportunity to enrich their educational experience, accelerate their development as young professionals, and hone skills that are needed to complete graduate- and career-level research. To become familiar with the process of scientific inquiry, including research goal definition, the scientific method, technical write-up, oral presentation of results, and publication of a manuscript, a senior thesis is an irreplaceable experience. The second part of the senior thesis experience, which will be completed in this course (FISH 499), will focus on completing analysis of the collected data and development of a comprehensive written research manuscript for submission to a scientific journal. Students will also be required to present their senior thesis at one of several different symposia held on the UAF campus or at a student subunit, state, or national AFS meeting.

The entire senior thesis process will improve the ability of students to find employment and additional educational opportunity after their CFOS B.S. or B.A. degrees have been completed. Employers and prospective graduate schools value research experience because it demonstrates the ability of a student to successfully complete a large-scale project that requires analytical, critical thinking, and oral and written communication skills. Undergraduate students frequently develop close and long-term professional relationships with their research mentors, and the example that mentors provide can be a lasting inspiration for students to become life-long learners in their field of choice. Specific student learning objectives associated with this course include the following:

a. Develop an understanding of how to critically analyze data and integrate results within the context of the existing scientific literature;
b. Present scientific research effectively in written, visual, and oral formats;
c. Sharpen critical thinking, written communication, data collection, and analysis skills.

Support/ Disabilities Services

If students need accommodation because of a disability, please contact the faculty mentor and CFOS internship coordinator as soon as possible to make the necessary arrangements with the Office of Disabilities Services (203 WHIT, 474-7043).

Instructional Methods

Students will learn from individual instruction from their faculty senior thesis mentor. In general, this course will require a significant degree of self-directed study.

Reading Assignments

There is no required text for this course; however, students will be required to conduct an extensive literature survey to develop their senior thesis proposal.

Course Calendar

The senior thesis experience is completed over two semesters. The first course in the sequence, FISH 498 Senior Thesis Proposal, must be completed successfully before students will be allowed to enroll for the second course (this course) in the sequence, FISH 499 Senior Thesis Project. The scheduling and timeline should be agreed upon between the student and faculty mentor within the first month of the semester the student is enrolled in the first course in the sequence (FISH 498). Below is an example of a general timeline that can be used as a template for a more detailed, specific timeline to be revised by the student and his/her senior thesis mentor for FISH 499.

Month 1: Completion of data analysis and summary of results;
Month 2: Completion of the interpretation of study results;
Month 3: Completion of the written senior thesis, including project title, abstract, introduction, methods, results, discussion, and literature cited;
Month 4: Oral or Poster presentation of research at an UAF undergraduate research symposium or a student subunit, state, or national AFS meeting; submission of the written manuscript to a scientific journal for peer review.

Course Assignments

1. Written Senior Thesis: Theses can vary between 15 to 100 pages in length, and can take the form of one or more research manuscripts. A basic thesis outline is provided below:

    Introduction
        Background/justification
        Study objectives
        Expectations/hypotheses
    Methods
        Study site description
        Data collection methods
        Data analyses
    Results
        Clear results/figures and tables of data
    Discussion/Conclusions
        Summary of results and interpretation
        Implications within the context of the literature
    Literature Cited
        All literature cited completely, minimal use of web resources, peer-reviewed literature (journal articles)

2. Presentation: Students enrolled for senior thesis are required to present their study results at the CFOS Undergraduate Internship Symposium. In addition, students enrolled for senior thesis credits are also encouraged to give a presentation at the UAF Research Day which will take place in April 2018 and/or at a student subunit, state, or national AFS meeting.

Grading

For senior thesis, failure to turn in any of the required assignments is grounds for a failing grade. Because the senior thesis is based on the individual experience, a grading curve does not apply. Assignments are as follows (details for each assignment are listed above): timeline, pre-proposal, proposal, and data collection and analysis.

Letter Grade Breakdown: (1) Faculty Evaluation of Timeline Completion 5%; (2) Senior Thesis 80% (breakdown as follows: abstract 10%, introduction 15%, methods 15%, results 20%, discussion 25%, literature cited 10%); and (3) Oral or Poster Presentation 15%. All letter grades will be based on an absolute 90-80-70-60 scale (e.g., $\geq 90\% = A$, and so on).

Course Policies

1. Late Assignments: All assignments are due to the faculty mentor by the dates indicated on the senior thesis timeline. If a student cannot turn in an assignment on time for a legitimate reason, it is the responsibility of the student to contact the faculty mentor (not the CFOS internship coordinator) prior to the date in question to not to receive a penalty.

2. Academic Honesty: All assignments are to be entirely the student's own work, unless the student receives specific instructions to the contrary. All aspects of this course are covered by the UAF Honor system. Any suspected violations will be promptly reported and appropriate action(s) will be taken. Honesty in your academic work will develop into professional integrity. The faculty, staff, and students of the UAF will not tolerate any form of academic dishonesty.