



Experiential Learning Opportunities for Undergraduate Students in Fisheries

Proposed Structure and Guidelines



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Introduction

One of the primary commitments of the University of Alaska Fairbanks School of Fisheries and Ocean Sciences is the training of future professionals in the field of fisheries. Public agencies and marine industries throughout Alaska and beyond need knowledgeable, experienced freshwater and marine scientists, technicians, economists, social scientists, and managers focused on the larger field of fisheries. Although there is no replacement for the traditional classroom in an undergraduate education, work experience in field and professional fisheries settings offer opportunities for lasting lessons and integration of classroom learning with ‘real world’ experience. In addition, for future fisheries scientists interested advanced degrees, independent research experience can be the capstone of their undergraduate education and a launching pad for their graduate careers. Finally, our students can benefit greatly from the attention, example, and lessons that only an active mentor in the field of fisheries can provide.

In an effort to expand the undergraduate program in Fisheries at the University of Alaska Fairbanks, take advantage of the unique opportunities provided by Alaska’s environment, and elevate the program to one of national prominence, we have placed particular emphasis on experiential learning in the newly established curriculum and designated a new member of the faculty, Amanda Rosenberger, as the coordinator of experiential learning opportunities for undergraduates in Fisheries.

The core of the Experiential Learning program is the new requirement for experiential learning to graduate with a Bachelor of Arts (B.A.) in Fisheries or a Bachelor of Sciences (B.S.) in Fisheries Sciences. Juniors and Seniors in the program can satisfy this requirement in the form of an internship or a senior thesis. In addition, opportunities are also provided to freshman and sophomores to receive academic credit for occupational experience in fisheries settings.

By making Experiential Learning a requirement for graduation, we at the School of Fisheries and Ocean Scientists must insure that the requirement is flexible enough to:

- 1) incorporate a range of academic abilities
- 2) allow participation of non-traditional students
- 3) incorporate a range of potential specializations in fisheries (e.g., research, business, policy, government, and journalism)
- 4) give opportunities for our top students to participate in original research, thereby encouraging pursuit of a graduate degrees in fisheries.

Internship Program

The internship program at the University of Alaska Fairbanks will be the core and the foundation of experiential learning in fisheries and the most common way for students to fulfill the requirement. In the internship program, students will earn credit through practical experience in a professional setting. The focus is on the employment experience, but students who wish for additional challenges and credit are encouraged to add written assignments and independent studies to their internship workload.

Senior Thesis

For our top students interested in continuing their studies into graduate school, an undergraduate thesis is an excellent way to gain research experience and become familiar with the research process. Thesis topics can easily spring from internship experiences, and seniors who successfully complete a thesis will be attractive candidates for graduate positions in fisheries. Under the close supervision of a member of the fisheries faculty, students who take this option will be required to write a full research proposal and a final paper in the form of a research manuscript intended for journal publication. Students will also present their results in a professional setting such as an American Fisheries Society subunit, chapter, or annual meeting.

The purpose of this document is to propose a framework for all of these options, including guidelines for students, faculty, and participating organizations. For each option, this document specifies student prerequisites, responsibilities, and proposed outcomes. For student internships and summer work experience, it also offers guidelines and procedures for employers. Finally, it specifies faculty involvement and responsibilities to students participating in this essential part of the fisheries curriculum.

In this document, we also present our effort to increase experiential learning opportunities for prospective rural Alaskan students with a summer fisheries field class on Nunivak Island for high school students from rural Alaska, who receive undergraduate academic credit from UAF. In addition, new course offerings such as Fisheries Techniques (FISH F315) place focus on field and laboratory experience. We briefly describe the Nunivak Island Science Camp led by Nicola Hillgruber and Fisheries Techniques class led by Trent Sutton.

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FISHERIES INTERNSHIPS

The internship program at the UAF will be the most common way that fisheries students will earn the experiential learning requirement for a Bachelor of Science or Arts in Fisheries. In addition, freshmen and sophomores in Fisheries will be encouraged to sign up for internship credit that does not fulfill the experiential learning requirement for graduation, but does provide academic credit for occupational experience.

For both classes, students will earn internship credit through practical experience in a professional setting. Potential employers of student interns include the fishing industry, federal and state agencies, academic research programs, non-governmental organizations, consulting companies, and government offices. The focus of an internship is the employment experience, but upper classman students who sign up for FISH 490 and who wish for additional credit and a letter grade are encouraged to add additional assignments and independent study to their internship workload. The program is modeled after the University of Alaska Southeast (UAS) Natural Resources Internship Guide presently supervised by Kate Sullivan, Assistant Professor of Fisheries Technology at the UAS Ketchikan Campus. The program in Ketchikan is an excellent model because it is employer-friendly, structured, and successful.

Internships might be seasonal summer jobs, part-time positions during the year, and may take place in another city or state. The guidelines that follow are based primarily on summer internships; however, they can be easily modified for fall or spring positions.

In the following sections, we summarize the role of the employer, student, and faculty sponsor for the internship process. Participants in the program should read each section of this document in order to be familiar with the entire process.

Employer Guidelines

By hiring students as paid interns, participating employers gain excited, enthusiastic, and fresh employees and the rewarding experience of interacting with rising stars in the field of fisheries. Participation in the internship program requires some extra effort by the employer to provide mentorship to the student and feedback to cooperators; however, we believe that this effort is far outweighed by the benefits.

Seasonal positions within an organization are an ideal fit; however, any position within an organization related to fisheries is open for consideration for the internship program. ***We expect our students to apply and compete for these positions within the guidelines of the hiring organization.*** To facilitate this process, we request interested employers to submit descriptions of existing jobs that would be suitable for internships, including dates of the application period, employment start and end dates, and a list of duties. The faculty internship coordinator at the UAF SFOS will compile and relay this information to students and identify potential matches between employers and students. However, students and employers are not required to work with faculty during the hiring process.

For summer internships, we will ask our students to prepare their resumes and cover letters and begin their job searches as early as January. For participating students, the SFOS internship coordinator will maintain a database of student resumes and cover letters that can be provided to interested employers upon request. Because active learning is a requirement for graduation, students will be anxious to finalize their plans, and we will encourage them to participate in this program prior to their senior year. We ask employers to release their job announcements and begin the hiring process as early as possible. Once hired, our students will be required to fulfill all of the work obligations defined under the job description.

We expect interns will be compensated by the employer at the same rate as any other employee with the same position description, including salary, benefits, housing, and job-related travel support. Employers can also fire or suspend an intern as they would any employee, but we hope that the employer would communicate their concerns to the student and faculty sponsor to give the student the opportunity to improve their performance. In cases when a student violates organization rules or safety procedures, we do not expect the employer to go through any process prior to terminating the student.

Participating employers are asked to provide students and faculty sponsors verification of student employment with a detailed job description before the student begins. Employers will be asked to select a mentor, or on-site supervisor, for the student intern. This supervisor should be a good role model and inclined towards mentorship. The UAF faculty cooperator will be available to employment organizations to offer advice and guidance for the on-site supervisor to assist them in this role. Prior to or at the very beginning of the internship, the student, on-site supervisor, and faculty member should agree upon internship learning objectives. Often learning objectives and job duties are inseparable; however we do not expect students to spend all of their time on the job accomplishing these learning objectives. Once learning objectives are set, cooperators should agree on timing of evaluations and deadlines for any assignments associated with the internship by developing an internship timeline. Both the learning objectives and

internship timeline will be included in the Student Internship Agreement (attached) that will be signed by the on-site supervisor, student, and faculty sponsor before being turned in to the SFOS academic office by the student.

On-site supervisors are asked to communicate with participating faculty on a monthly basis and conduct formal mid-point and final evaluations of the student. The UAF SFOS will provide forms that can be used for that purpose (see Internship Forms at end of document). If an employer has an established evaluation procedure that they prefer, they can use that procedure as an equivalent as long as the faculty sponsor agrees. Employers are encouraged to provide written evaluations of students in addition to the evaluation form. If at all possible, the faculty supervisor will attempt to do an on-site visit during the internship, and the on-site supervisor should be the contact person for the visit.

EMPLOYER CHECKLIST

- Contact Internship Coordinator at the UAF SFOS to submit existing jobs that may be suitable for internships. Include application process information, dates of the application period, employment start and end dates, and a list of duties.
- Work with the UAF SFOS internship coordinator to identify eligible candidates from the student pool.
- Early release of position announcement.
- Interview and screen student applicants.
- Hire the student applicant.
- Select or act as a mentor and on-site supervisor for the student.
- Assist in the development of an *Internship Agreement* with the student and the university faculty sponsor. All parties must agree on learning objectives, deadlines, and assignments. The number of credits received for the internship will be based on academic guidelines specified in this document.
- Provide on-site supervision and mentorship to the student intern.
- Provide monthly update to faculty sponsor.
- Conduct a mid-point evaluation (see attached form).
- Conduct a final evaluation (see attached form).
- Communicate with faculty sponsor as needed or during on-site visits.
- Provide feedback to the university on your experience with the internship program.

THANK YOU!

Employers of our student interns are providing an irreplaceable and memorable experience for our students that will shape their future in fisheries.

STUDENT GUIDELINES

Before the internship begins The essence of experiential learning is that it is *student-directed*. Students are ultimately in charge of this experience and what they learn from it and should start working towards their internship at least six months prior to when they plan to begin. It is worth planning ahead - the internship experience may be the most life-changing and important part of an academic career.

Students should begin by thinking about what aspect of the larger field of fisheries particularly interests them and discussing their interests with their faculty sponsor and the internship coordinator. The internship coordinator will identify probable matches between students and employers.

The next step is to get a resume and statement of interests together. The internship coordinator can provide examples to help students get started and is available to proofread and critique both. A good guide during this process is The AFS Guide to Fisheries Employment, an inexpensive and valuable reference available through the American Fisheries Society Bookstore (www.fisheries.org). The academic office and the internship coordinator also have copies on hand.

Students are required to go through the employer's application procedures when applying for internships. Once the student has received a job offer, they are required to decide prior to accepting the position and signing up for internship credits how they want to structure their internship experience and define their learning objectives (See Proposed Academic Guidelines). They should coordinate this decision with their prospective employer and faculty supervisor. The employer should be provided with this guide so that they understand their responsibilities towards the internship experience.

The student, employer, and faculty sponsor need to fill out a *STUDENT INTERNSHIP AGREEMENT* form and officially register for internship credits with the university. If the student is seeking only internship credits, the internship form needs to be filled out within a week of the beginning of the employment period. If the student is seeking additional, independent study credits by adding additional assignments to their program (recommended for FISH 490 only), they must have a student internship agreement turned in *prior* to the beginning of the employment period. Employers and students should keep in mind that for each credit hour, 50 hours of work is required. Time allotments do not need to be scheduled. One of the most important parts of the student internship agreement is the "timeline," which provides major landmarks and deadlines for the internship.

During the internship Students are required to fulfill their job duties and meet the learning objectives set at the beginning of the internship. Requirements and assignments due to the faculty sponsor will vary depending on the learning objectives and whether or not you sign up for additional individual study credit (recommended for FISH 490 only). All students are required to communicate monthly with their faculty sponsor and participate in the evaluation process. The UAF SFOS encourages students to strive for excellence in their positions and accept and incorporate the criticism of their on-site supervisors. *Students are responsible for making sure that all requirements and*

deadlines specified in the internship agreement and timeline are met. If unforeseen circumstances result in changes to the agreement, all three parties must agree to those changes and an amendment should be submitted to the academic office.

After the internship Students must submit all assignments to their faculty sponsor in a timely manner. The on-site supervisor and the student will supply to the faculty sponsor the original copy of the final evaluation. A meeting of the employer, intern, and faculty sponsor at this time may be beneficial in some cases.

STUDENT CHECKLIST

- Make sure that you meet the prerequisites of the student internship program.
- Meet with the Internship Coordinator and/or faculty sponsor to discuss interests for internships. Explore issues such as work content, location, and time frame.
- Craft a resume and a statement of intent; work with the internship coordinator to refine and finalize.
- Identify and apply for job(s) directly with employers that interest you and compete through the employer's application process. Tell perspective employers that you intend to earn internship credit and let them know what that entails.
- Get a job offer! Make sure to discuss internship requirements with your perspective employer before accepting the job.
- Develop the Student Internship Agreement with your employer and faculty sponsor. Development of the agreement must happen far enough before the employment start date that, if an agreement is not successfully negotiated, the employer can hire someone else. If you are planning on taking additional independent study credits for your internship, you **MUST** establish this ahead of time.
- Enroll for internship credit. To obtain credit and transcript documentation, the student must enroll and pay for the internship through normal University enrollment processes.
- Begin work!
- Keep track of learning objectives and constantly document and evaluate your experience.
- Meet frequently with your on-site supervisor and keep communication lines open. Make sure to schedule a time for the formal midpoint evaluation with your supervisor, and, if possible, your faculty sponsor.
- Submit final assignments, meet for final evaluation with your supervisor, and, if possible, your faculty sponsor.

Academic Guidelines

Depending on whether or not you sign up for the lower-classman (FISH 290) or upper-classman version of the internship credit (FISH 490) and whether you choose to sign up for additional academic credit in the form of an independent study, student requirements will differ. The following pages contain the syllabi for the two forms of the internship, complete with guidelines on how to apply for additional academic credit.

Syllabus
FISH 290 FISHERIES INTERNSHIP
FALL, SPRING, AND SUMMER SEMESTER

Course Credits: 1 (P/F)

Contact Hours: (variable, at least 2400 - 8000 minutes of supervised scholarly activity)

Course Prerequisites: Permission of Faculty Sponsor and the Fisheries Experiential Learning Coordinator (The coordinator may be both) based on an internship agreement. You may take this course multiple times up to 4 credits total.

Recommended Courses: STAT 200

Meeting Location and Time: N/A

Instructor/ Experiential Learning Coordinator

Dr. Amanda E. Rosenberger

207B O'Neill Building

Voice: 474-7458

Email: rosenberger@sfos.uaf.edu

Office Hours: TBA

Required text: There is no required text for this course. Upon signing up for this course, students will receive a packet that includes this syllabus and Internship Guidelines for employers, students, and the Experiential Learning Coordinator.

Recommended reading: *The AFS Guide to Fisheries Employment*, Second Edition, edited by David A. Hewitt, William E. Pine, III, and Alexander V. Zale.

Course Description: Under the supervision and mentorship of a Fisheries faculty member and a qualified professional in the field, students will earn internship credit through practical experience in a professional setting. Potential employers of student interns include the fishing industry, federal and state agencies, academic research programs, non-governmental organizations, consulting companies, and government offices. The focus of an internship is the employment experience. Requirements for the internship will be decided prior to the student's enrollment and employment based on a 3-way cooperative agreement between the employer and student with a faculty sponsor.

Course Goal: One of the primary commitments of the University of Alaska Fairbanks (UAF) School of Fisheries and Ocean Sciences (SFOS) is the training of future professionals in the field of fisheries. Public agencies and marine industries throughout Alaska and beyond need knowledgeable and experienced freshwater and marine scientists, technicians, economists, social scientists, and managers focused on the larger field of fisheries. Although there is no replacement for the traditional classroom in an undergraduate education, professional experience in a fisheries setting offers an opportunity for lasting lessons and integration of classroom learning with 'real world' experience.

Potential Student Learning Outcomes (additional, personalized outcomes should be listed in the Student Internship Agreement):

1. Sharpen professional skills in fisheries.
2. Learn more about practical application of fisheries concepts in professional settings.
3. Refine career goals.

Instructional Methods: For the most part, students will learn from individual instruction from on-site mentors and their faculty sponsor.

COURSE CALENDAR

Seasonal jobs sometimes do not fit conveniently into a single semester, or into the summer break from school. The university and faculty will work with the students to develop specific timelines and schedules on a case-by-case basis (see Timeline of Employment assignment below). Where possible, the timelines will fit within the academic calendar. How well the student follows this timeline and communicates any necessary changes with their on-site supervisor and cooperating faculty member will play a role in their final evaluation.

ASSIGNMENTS

Student Internship Agreement Form (see attached form): You will not receive permission to sign up for this course without an internship agreement. Although the student will be in charge of making sure this agreement is filled out and the original turned in to the academic office, all three cooperators (student, employer, and faculty sponsor) are required to complete portions of this document and agree on its contents. Once it is finished, copies should be retained by all three cooperators and the UAF SFOS internship coordinator.

Timeline of employment:

The timeline should provide major landmarks and deadlines for the internship. It will require contribution and confirmation of all three participants. It should include the following:

- 1) Date that employment begins and ends
- 2) Dates of internship landmarks (e.g., time in field, initiate data collection, etc.)
- 3) Deadlines for student assignments (i.e., final summary of internship experience; student journal; resume, including internship under work experience)
- 4) Due dates for mid-point and final evaluations from the on-site supervisor

Mid-point and Final Evaluations (see attached form) Employers are required to fill out these evaluations and go over them with the student intern. Once both are signed, they can be turned in to the faculty sponsor to be signed. Originals are to be kept in the academic office; copies should be retained by all three cooperators and the UAF SFOS internship coordinator.

Internship summary: One-page summary of the internship experience. Did the internship help you refine your career goals? In what way?

Resume: All students that have successfully obtained employment should already have a resume. It is important to frequently update these documents. Students will be required to update their resumes to include that internship experience and turn in those resumes to their faculty sponsor.

COURSE POLICIES

Academic Honesty: All assignments submitted are to be entirely your own work, unless you receive specific instructions to the contrary. All aspects of your course work are covered by the Honor system. Any suspected violations (e.g. cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken. Honesty in your academic work will develop into professional integrity. The faculty and students of the University of Alaska Fairbanks will not tolerate any form of academic dishonesty.

Late Assignments: All assignments are due to your faculty sponsor as indicated by the Internship Guideline. If you cannot turn in an assignment on time for a legitimate reason, it is your responsibility to contact the faculty sponsor prior to the date in question in order not to receive a penalty.

EVALUATION/ GRADING

PASS/FAIL. For all internships, failure to turn in any of the required assignments is grounds for a failing grade. Because the internship is based on the individual experience, a grading curve does not apply.

To pass, turn in all required assignments and evaluations and receive a satisfactory final evaluation from the on-site supervisor. Assignments: Mid-point evaluation, Final evaluation, and a one-page summary of the internship experience.

Support/ Disabilities Services: If you need accommodation because of a disability, please contact the Experiential Learning Coordinator as soon as possible in order to make the necessary arrangements. She will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation

<p>THE STUDENT INTERNSHIP AGREEMENT FORM AND STUDENT EVALUATION FORM IS THE SAME FOR FISH 290 AS FISH 490, WHICH IS ATTACHED TO THE FISH 490 SYLLABUS IN THIS DOCUMENT.</p>

Syllabus
FISH 490 EXPERIENTIAL LEARNING – FISHERIES INTERNSHIP
FALL, SPRING, AND SUMMER SEMESTER

Course Credits: 1 (P/F)

Contact Hours: (variable, at least 2400 - 8000 minutes of supervised scholarly activity)

Course Prerequisites: Fisheries major with junior or senior standing. Permission of Faculty mentor and the Fisheries Experiential Learning Coordinator/ Instructor (The coordinator may be a sponsor) after submission of a pre-proposal. STAT 200, ENGL 414. This course is repeatable for up to 4 credits.

Recommended Courses: STAT 200, STAT 401, FISH 315

Meeting Location and Time: N/A

Instructor/ Experiential Learning Coordinator

Dr. Amanda E. Rosenberger

207B O'Neill Building

Voice: 474-7458

Email: rosenberger@sfos.uaf.edu

Office Hours: TBA

Required text: There is no required text for this course. Upon signing up for this course, students will receive a packet that includes this syllabus and Internship Guidelines for employers, students, and the Experiential Learning Coordinator.

Recommended reading: *The AFS Guide to Fisheries Employment*, Second Edition, edited by David A. Hewitt, William E. Pine, III, and Alexander V. Zale.

Course Description: Under the supervision and mentorship of a Fisheries faculty member and a qualified professional in the field, students will earn internship credit through practical experience in a professional setting. Potential employers of student interns include the fishing industry, federal and state agencies, academic research programs, non-governmental organizations, consulting companies, and government offices. The focus of an internship is the employment experience, but students who wish for additional credit and a letter grade are encouraged to also sign up for individual study credits and add written assignments or written projects to their internship workload (see attached individual study guidelines).

Requirements for the internship will be decided prior to the student's enrollment and employment based on a 3-way cooperative agreement between the employer and student with a faculty sponsor. The learning objectives listed on the student internship agreement form should reflect upper-division internship credits received. The internship program fulfills the experiential learning requirement for a Bachelor of Science or Arts in Fisheries.

Course Goal: One of the primary commitments of the University of Alaska Fairbanks (UAF) School of Fisheries and Ocean Sciences (SFOS) is the training of future professionals in the field

of fisheries. Public agencies and marine industries throughout Alaska and beyond need knowledgeable and experienced freshwater and marine scientists, technicians, economists, social scientists, and managers focused on the larger field of fisheries. Although there is no replacement for the traditional classroom in an undergraduate education, professional experience in a fisheries setting offers an opportunity for lasting lessons and integration of classroom learning with ‘real world’ experience.

Potential Student Learning Outcomes (additional, personalized outcomes should be listed in the Student Internship Agreement):

4. Sharpen critical thinking, written communication, and/or professional skills in fisheries.
5. Become familiar with data collection, handling, summary, and/or analysis.
6. Become familiar with the research process.

Instructional Methods: For the most part, students will learn from individual instruction from on-site mentors and their faculty sponsor.

COURSE CALENDAR

Seasonal jobs sometimes do not fit conveniently into a single semester, or into the summer break from school. The university and faculty will work with the students to develop specific timelines and schedules on a case-by-case basis (see Timeline of Employment assignment below). Where possible, the timelines will fit within the academic calendar. How well the student follows this timeline and communicates any necessary changes with their on-site supervisor and cooperating faculty member will play a role in their final evaluation.

ASSIGNMENTS

Student Internship Agreement Form (see attached form): You will not receive permission to sign up for this course without an internship agreement. Although the student will be in charge of making sure this agreement is filled out and the original turned in to the academic office, all three cooperators (student, employer, and faculty sponsor) are required to complete portions of this document and agree on its contents. Once it is finished, copies should be retained by all three cooperators, and the UAF SFOS internship coordinator. The learning objectives listed on the student internship agreement form should reflect upper-division internship credit.

Timeline of employment:

The timeline should provide major landmarks and deadlines for the internship. It will require contribution and confirmation of all three participants. It should include the following:

- 1) Date that employment begins and ends
- 2) Dates of internship landmarks (e.g., time in field, initiate data collection, etc.)
- 3) Deadlines for student assignments (i.e., final summary of internship experience; student journal; resume and C.V., including internship under work experience; term paper; research report)
- 4) Due dates for mid-point and final evaluations from the on-site supervisor

Mid-point and Final Evaluations (see attached form) Employers are required to fill out these evaluations and go over them with the student intern. Once both are signed, they can be turned in to the faculty sponsor to be signed. Originals are to be kept in the academic office; copies should be retained by all three cooperators and the UAF SFOS internship coordinator.

Internship summary: One-page summary of the internship experience completed by the student, with particular focus on how the internship met the learning objectives outlined in the Student Internship Agreement.

Resume or Curriculum vitae (C.V.): All students that have successfully obtained employment should already have a C.V. or resume. It is important to frequently update these documents. Students will be required to update their resumes to include that internship experience and turn in those resumes to their faculty sponsor.

COURSE POLICIES

Academic Honesty: All assignments submitted are to be entirely your own work, unless you receive specific instructions to the contrary. All aspects of your course work are covered by the Honor system. Any suspected violations (e.g. cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken. Additionally, you will receive a zero for that assignment; two such violations and you will automatically fail. Honesty in your academic work will develop into professional integrity. The faculty and students of the University of Alaska Fairbanks will not tolerate any form of academic dishonesty.

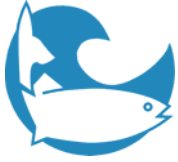
Late Assignments: All assignments are due to your faculty sponsor as indicated by the Internship Guideline. If you cannot turn in an assignment on time for a legitimate reason, it is your responsibility to contact the faculty sponsor prior to the date in question in order not to receive a penalty.

EVALUATION/ GRADING

PASS/FAIL. For all internships, failure to turn in any of the required assignments is grounds for a failing grade. Because the internship is based on the individual experience, a grading curve does not apply.

To pass, turn in all required assignments and evaluations and receive a satisfactory final evaluation from the on-site supervisor. Assignments: Mid-point evaluation, Final evaluation, and a one-page summary of the internship experience.

Support/ Disabilities Services: If you need accommodation because of a disability, please contact the Experiential Learning Coordinator as soon as possible in order to make the necessary arrangements. She will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities



Student Internship Agreement

(Fill in appropriate information, expand or attach as required – see back for guidelines)

Date: _____ Student: _____ ID#: _____

Mailing Address:

Telephone: _____ Email: _____

Address during employment (if different from above):

Telephone: _____ Email: _____

Organization (Employer): _____

On-site Supervisor: _____

Telephone _____ Email: _____

Job Title: _____

Job Description:

Estimated hours to serve per week:

Internship Learning Objectives:

Internship Timeline:

Student Date

On-site supervisor Date

Faculty Sponsor Date

Guidelines for Internship Agreement form:

Students are required to turn in the agreement form prior to employment to the faculty sponsor. The original form will be filed in the UAF academic office. Copies will be provided to the student, on-site supervisor, faculty sponsor, and the Experiential Learning Coordinator.

Job Description: Student interns will be assigned duties both inside and outside of learning objectives. However, students will not be required to undertake tasks for others that may be said to be of a personal nature not directly related to the performance of organizational activities, such as picking up “dry cleaning” or preparing personal correspondence. Duties such as making coffee, making “runs” for food, or clean-up duties may be assigned to students only as these activities may be shared among other employees of the organization. Such shared duties must be enumerated.

Internship Learning Objectives and Total Credit Hours: Students should have learning objectives that reflect upper-division credits for the internship. See attached syllabus for sample learning objectives.

Internship Timeline: The timeline should provide major landmarks and deadlines for the internship. It will require contribution and confirmation of all three participants. It should include the following:

- 1) Date employment begins and ends
- 2) Dates of internship landmarks (e.g., time spent in field, initiate data collection, etc.)
- 3) Deadlines for student assignments (i.e., final summary of student internship experience; resume and C.V., including internship under work experience; any additional assignments for individual study credits [research report; journal entries])
- 4) Due dates for mid-point and final evaluations from on-site supervisor
- 5) When faculty will be required to notify academic office and the student of final grade received.



STUDENT INTERN EVALUATION FORM

Mid-point

Final

Date: _____

Organization: _____

Student: _____ Employer: _____

Please circle rating in each category (1=poor; 3=satisfactory; 5 = excellent)

Independent planning and organization skills	1	2	3	4	5	N/A
Demonstrates self-initiative but requests assistance when needed	1	2	3	4	5	N/A
Punctuality	1	2	3	4	5	N/A
Timeliness on task performance and problem solving	1	2	3	4	5	N/A
Ability to learn and implement novel tasks	1	2	3	4	5	N/A
Data handling, entry, proofing, and/or compilation	1	2	3	4	5	N/A
Cooperatively works as a team member	1	2	3	4	5	N/A
Handles mishaps with maturity and flexibility	1	2	3	4	5	N/A
Accepts and utilizes constructive criticism	1	2	3	4	5	N/A
Original and critical thinking skills	1	2	3	4	5	N/A
Communication skills	1	2	3	4	5	N/A
Field readiness and preparedness	1	2	3	4	5	N/A
Adherence to organizational standards of appearance and conduct	1	2	3	4	5	N/A
Adherence to safety standards	1	2	3	4	5	N/A
Overall work ethic	1	2	3	4	5	N/A
Overall performance	1	2	3	4	5	

Outstanding work qualities:

Areas that need work:

Additional comments:

Signatures:

On-site supervisor: _____ Date: _____

Student: _____ Date: _____

Faculty Sponsor: _____ Date: _____

Appendix: **GUIDELINES FOR TAKING INDIVIDUAL STUDY CREDIT WITH YOUR FISHERIES INTERNSHIP**

Often, students are given the opportunity to increase the breadth of their internship through individual study, including daily journals, research reports, and literature searches. The guidelines below offer students options for how to pair additional individual study credit in conjunction with their fisheries internship course.

Procedural Guidelines: To register for an individual study course, get an individual study approval form from the Registrar's Office, or download it from the web at www.uaf.edu/reg/forms/individual.pdf. Have it signed by your faculty sponsor, internship coordinator (the coordinator may serve as the faculty sponsor) and department head from the department in which the course is being taught, and turn it in with your registration or add/drop form. Individual study course numbers end in -97. The course section number for an individual study course will be assigned by the Registrar's Office after you register for your other classes. *The internship coordinator will not support individual study associated with internships if students do not meet the basic requirements listed below.*

INDIVIDUAL STUDY – INTERNSHIP - ACADEMIC CREDIT GUIDELINES (2-3 additional credits)

All grades will be based on an absolute 90-80-70-60 Scale (e.g., $\geq 90\%$ = A, and so on).

1 Additional Individual Study Credit with Internship (Pass/Fail or Letter Grade):

To register for individual study with a fisheries internship, you should have a GPA of 2.0 or higher and be admitted to Fisheries or related major.

Assignments:

- 1) Student Internship Agreement Form, including verification of employment as an intern in a natural resource/ fisheries position in a participating organization with a detailed job description; learning objectives; and timeline of employment, assignments, and deadlines agreed upon by all cooperators. **DUE WITHIN FIRST WEEK OF EMPLOYMENT.**
- 2) Mid-point and final evaluation from an on-site supervisor.
- 3) Student Journal recording weekly work duties, with emphasis on what was learned, noting how it relates to the internship learning objectives.
- 4) Final one page report from the student summarizing the internship experience and knowledge and skills gained.
- 5) Final resume or C.V. that includes the internship under 'work experience.'

Pass/Fail: To pass, turn in and receive a satisfactory rating on all required assignments and evaluations listed below. You must also receive a satisfactory final evaluation from the on-site supervisor.

Letter Grade breakdown :

Mid-point evaluation 10%

One-page Summary 15%

Weekly Journal 25%
Resume/C.V. 10%
Final evaluation 40%

2 Additional Individual Study Credits with Internship (Letter Grade): To register for 2 credits of individual study with a fisheries internship, you should have a GPA of 2.5 or higher and be admitted to a Fisheries or related major.

Assignments:

- 1) Student Internship Agreement Form, including verification of employment as an intern in a natural resource/ fisheries position in a participating organization with a detailed job description; learning objectives; and timeline of employment, assignments, and deadlines agreed upon by all cooperators. DUE PRIOR TO EMPLOYMENT.
- 2) Mid-point and final evaluation from an on-site supervisor.
- 3) Student Journal recording each day's work, with emphasis on what was learned, noting how it relates to the internship agreement. The journal is to be turned into the faculty cooperator at the end of the internship.
- 4) Resume or C.V. that includes the internship under 'job experience.'
- 5) Term paper on a subject agreed upon at the beginning of the employment that relates directly to internship duties.

Letter Grade Breakdown:

Mid-point evaluation 10%
Final evaluation 25%
Daily student journal 15%
Resume or C.V. 10%
Term Paper 40%

3 Additional Individual Study Credits with Internship (Letter Grade): To register for 3 credits of individual study with a fisheries internship, you should have Junior or senior standing in Fisheries or related major and a GPA of 3.0 or higher.

Assignments:

- 1) Student Internship Agreement Form, including verification of employment as an intern in a natural resource/ fisheries position in a participating organization with a detailed job description; learning objectives; and timeline of employment, assignments, and deadlines agreed upon by all cooperators. DUE PRIOR TO EMPLOYMENT.
- 2) Written proposal on an independent study to be conducted during the internship. The independent study should relate directly to internship duties. Due within first month of employment.
- 3) Mid-point and final evaluation from an on-site supervisor.
- 4) Student Journal recording each day's work, with emphasis on what was learned, noting how it correlates to the internship agreement.
- 5) Resume or C.V. that includes the internship under 'job experience'
- 6) Term paper or research report from the student based on proposal due at the beginning of the internship.

Grade Breakdown:

- Proposal 15%
- Mid-point evaluation 5%
- Daily student journal 10%
- Final evaluation 20%
- Resume or C.V. 5%
- Research Paper 45%

ASSIGNMENT DESCRIPTIONS:

Weekly or Daily Journal: Students can record work and duties daily or weekly in an internship journal, depending on the amount of credits received (see guidelines). Emphasis should be placed on what was learned, noting how it relates to the internship agreement. Keeping such a journal is a good work habit to develop early. It only takes a few minutes per day once the student is used to keeping such a journal. These records can be particularly important when working on contract or on federal/private grants.

Term Paper: Term papers are typically 10-15 pages and can be focused on a particular subject relevant to internship learning objectives. Example subjects: “Use of otoliths in investigations of salmonid ecology;” “The effects of river channelization on stream fish communities,” “Glacier retreat and climate change in Alaska.” They do not need to involve a specific experiment, but rather could represent a literature survey of a particular subject. The final paper should be polished, proofread, and have a clear introduction, body, and conclusion. The faculty sponsor will ultimately set the standards for, provide examples, and evaluate this document, and the students and sponsoring faculty must write up a schedule for when objectives, outlines, drafts, and the final document are due in the project timeline portion of the Student Internship Agreement Form.

Research Paper (proposal and final product): Research papers are generally 15-30 pages and should be based on actual data collected during the student internship and take the form of a research manuscript (outline below). If a student decides to complete a research paper, they must submit research objectives within the first week of employment and a detailed proposal outlining their research project to their on-site supervisor and faculty sponsor within the first month of their employment. Supervisors and faculty sponsors should make sure that the project is feasible and attainable within the time allotted.

Research Project Basic Outline (may be adjusted based on research topic):

- Introduction
 - Background
 - Objectives and Expectations/hypotheses
- Methods
 - Study Site
 - Data collection Methods and Data Analysis
- Results
 - Cut and dry results/ figures and tables
- Conclusions
 - Summary of results and interpretation
 - Local/ Broader implications
- Literature Cited (All literature cited completely, minimal use of web resources, peer-reviewed literature (journal articles))

FACULTY GUIDELINES

Faculty Sponsors

Although all parties involved in the internship must assist students in succeeding in this work-based learning opportunity, faculty sponsors should keep in mind that the internship is a student – directed experience. The sponsor’s primary job is to make sure that the student meets the requirements set out in the student internship agreement. A faculty sponsor should have regular contact with the intern, according to the method and schedule written out in the agreement. Sponsors should also be available to the on-site supervisor and respond to both monthly communications and mid-point and final evaluations. If there are issues of concern, the sponsor is expected to work with both the student and the supervisor to help resolve problems. If possible, the faculty supervisor may visit the site of employment at least once during the student internship. However, the remote location of some internship sites may require the faculty member to become acquainted with the project using other methods (e.g., photographs, videoconferencing).

The faculty sponsor will also be in charge of compiling evaluations, grading written assignments (e.g., internship summaries, resumes, term papers, or research papers), verifying completion of credits, and turning in final grades to the academic office. In case when a large written assignment is due (e.g., term paper or research report), the faculty sponsor and the on-site supervisor may choose to jointly grade and evaluate the project. This should be decided and documented in the Student Internship Agreement. Copies of evaluations, internship summaries, and employer feedback should be sent to the internship coordinator and the academic office.

FACULTY SPONSOR CHECKLIST

- Make sure that the students meet the prerequisites of the program before approving registration for an internship.
- Work with the on-site supervisor and the student to establish learning objectives and complete the Student Internship Agreement.
- Have monthly contact with both the student and the supervisor, and make sure that assignments and evaluations are submitted in a timely manner.
- Grade assignments and turn in final grades.

The Undergraduate Experiential Learning Coordinator

The UAF SFOS faculty member that is the coordinator of the internship program will facilitate active learning opportunities for fisheries students, keep track of job opportunities from employers interested in hiring student interns, and match student interests with appropriate job opportunities and a faculty sponsor to work with the student during their internship. The coordinator is the default sponsor of student internships if no other faculty member is identified. The coordinator will organize student workshops on resume, *C.V.*, and cover letter writing; interview skills; and professional conduct. The coordinator will provide students with feedback on their resumes and cover letters to make sure they are as prepared as possible for the application experience. The coordinator also serves as the contact person for employers interested in the program. The coordinator will also frequently update this document to be current and to incorporate lessons learned as the internship program develops.

INTERNSHIP COORDINATOR CHECKLIST

- Compile a list of all Fisheries students; identify those that have not met the active learning requirement of the program.
- Compile a list of participating employers and contact about job openings.
- Organize workshop on resume, *C.V.*, and cover-letter writing. Evaluate resumes and cover letters and provide necessary feedback to students.
- Organize workshop on interview skills and on-the-job professional conduct.
- Identify all interested students and match them with potential employers.
- Track the job application experience for participating students.
- Identify all students with summer employment, identify faculty sponsors, and get them working on the Student Internship Agreement.
- Make sure all students have filled in and submitted their student internship agreements.
- Review all agreements to make sure they follow internship program guidelines.
- Facilitate open communication between students, employers, and faculty sponsors throughout the employment period.
- Contact employers after the employment period to evaluate their experience.
- Use feedback to document successes and failures and use evaluations to revise current structure and guidelines.

SELECTED LIST OF EMPLOYERS

Employers Within Alaska that have expressed interest in our students:

Federal Employers

Fish and Wildlife Service (Fairbanks, Homer, Anchorage positions)
Forest Service (Anchorage positions)
National Park Service (Fairbanks & Anchorage positions)
NOAA Fisheries Alaska Fisheries Science Center
US Geological Service (Fairbanks)
Bureau of Land Management (Fairbanks)

State Employers

Alaska Department of Fish and Game (Statewide)
Department of Natural Resources (Statewide)
Governor's Office (Juneau)
Department of Environmental Conservation (Fairbanks)

University Employers

School of Fisheries and Ocean Sciences (GPMSL, IMS, and FISHERIES)
UAF Forest Growth and Yield Program
School of Natural Resources and Agricultural Sciences
Institute of Arctic Biology

Tribal Governments

Kuskokwim Native Association
Council of Athabascan Tribal Governments
Association of Village Council Presidents, Fisheries and Forest Resources

Hatcheries

Cook Inlet Aquaculture Association
Douglas Island Pink & Chum, Inc. (DIPAC)
Prince William Sounds Aquaculture Corporation

Research and Outreach Centers

Alaska SeaLife Center
Alaska Fisheries Science Center (see federal employers above)

Private, Consulting, or Other

Saltwater, Inc.
ENSR AECOM
Cordova District Fishermen United
Kawerak, Inc.
Arctic Slope Regional Corporation Arctic Energy Services, Regular and Technical Services

Outside Alaska Employers that have expressed interest (some have merely sent announcements):

Gallatin National Forest, Bozeman, MT

Coweeta Hydrologic Laboratory

Marine Conservation Biology Institute (MCBI)

Virginia Institute of Marine Science (VIMS)

American Geological Institute

International Pacific Halibut Commission

Waddell Mariculture Center, South Carolina Department of Natural Resources

Aquaculture and Aquatic Resources Management, Bangkok, Thailand

Minnesota Department of Natural Resources

Virginia Cobia Farms

University of Arkansas at Pine Bluff

Mote Marine Laboratory Sarasota, Florida

Harbor Branch

Adventure Aquarium, Camden, New Jersey

SeaWorld, Orlando, Florida

National Aquarium, Baltimore, Maryland

Sea Life Park Hawaii, Dolphin Discovery, Oahu Waimanalo, Hawaii

University of Hawaii at Hilo

Arcata Fish and Wildlife Office, Arcata California

THE SENIOR HONORS THESIS

A thesis is a year-long, self-designed scholarly project that is the capstone of a student's exemplary academic performance in the Fisheries program. A senior honors thesis should be an original work that adds to the fisheries discipline. Though not as large in scope as an M.S. project, undergraduate research can serve as a launching pad to graduate school or a career.

This option is designed for our best students. To enroll for a senior thesis, a student is required to have at least a 3.2 GPA, chosen a faculty mentor, and have a short, pre-proposal outlining their research topic of interest. Senior theses could stem from summer research experience as a student intern or take place entirely on campus in a fisheries laboratory. The Experiential Learning Coordinator will work to match students with appropriate faculty mentors based on their interests.

GUIDELINES FISH 499 FISHERIES SENIOR THESIS FALL AND SPRING SEMESTERS

Course Credits: 2-4 credits. Not to be repeated for more than 4 credits total.

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

Course Prerequisites: Fisheries major with senior standing and a GPA of 3.2 or higher.
Permission of Faculty mentor and the Fisheries Experiential Learning Coordinator/ Instructor (The coordinator may be a mentor) after submission of a pre-proposal.
STAT 200, ENGL 414

Recommended Classes: STAT 401, STAT 402, FISH 315

Meeting Location and Time: N/A

Instructor/ Experiential Learning Coordinator

Dr. Amanda E. Rosenberger

207B O'Neill Building

Voice: 474-7458

Email: rosenberger@sfos.uaf.edu

Office Hours: TBA

Required text: There is no required text for this course; however, students will be required to conduct literature surveys as part of their senior thesis project.

Description: Under the supervision and mentorship of a Fisheries faculty member, students will complete an undergraduate thesis - a year-long, self-designed scholarly project that is the capstone of a student's exemplary academic performance in the Fisheries program. A senior honors thesis should be an original work that adds to the fisheries discipline. Though not as large in scope as an M.S. project, undergraduate research can serve as a launching pad to graduate school or a career. Senior theses could stem from summer research experience as a student intern or take place entirely on campus in a fisheries laboratory. Participation in this program will count towards the Experiential Learning requirement for a B.S. or B.A. in Fisheries.

Goal: 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-level research. To become familiar with the process of scientific inquiry, including research goal definition, scientific method, technical write-up, oral presentation of results, and publication, a senior thesis is an irreplaceable experience.

The process will also improve the ability of students to find employment and additional educational opportunity after their B.S. or B.A. is 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.

Student Learning Outcomes:

- 1) Understand how to develop and complete a scientific research project
- 2) Understand how to critically analyze data and integrate results within the context of existing literature
- 3) Present scientific research effectively in written, visual, and oral formats

Instructional Methods: For the most part, students will learn from individual instruction from their faculty senior thesis mentor. This will involve a great deal of self-directed study.

THESIS TIMELINE

The senior thesis is taken over two semesters. The scheduling and timeline should be agreed upon between the student and faculty mentor within the first month of the semester. Below is an example of a rough timeline that can be used as a springboard for a more detailed, specific one created by students and their mentors. A summer internship experience could potentially serve as the first “semester” of a senior thesis; therefore, you can take 2 credits of Senior Thesis for a letter grade to complete a senior thesis.

First Semester (Letter Grade)

Month 1: Submission of pre-proposal, selection of faculty advisor/mentor, creation of project timeline, and initiation of literature review.

Month 2: Completion of literature review and submission of full proposal.

Month 3: Collection of data.

Month 4: Summary of data and data analysis & progress report to advisor.

Second Semester (Letter Grade)

Month 1: Complete data analysis and summary of results.

Month 2: Complete discussion and interpretation of results.

Month 3: Completed thesis on the topic, including Title, Abstract, Introduction, Materials and Methods, Results, and Discussion with a Literature Cited.

Month 4: Oral or Poster presentation of research at Student subunit AFS meeting or undergraduate research symposium.

ASSIGNMENTS

Timeline: The timeline should provide major landmarks and deadlines for the thesis and follow the outline given above.

Pre-proposal: The pre-proposal is a 1- to 2- page outline of the senior thesis required to be presented to the faculty advisor and Experiential learning coordinator prior to signing up for the senior thesis. The pre-proposal should contain study goals and objectives, general methods to be used to address objectives, and expected outcomes.

Proposal: The proposal is a 10-15 page proposal of the project to be conducted, including background information, specific objectives and hypotheses to be tested, proposed methods, and data analysis approach. The thesis timeline should also be included in this document.

Progress reports: These should be submitted to the faculty advisor at a regular basis (to be decided while creating a timeline), detailing progress in literature review, data collection, data analysis, and write-up.

Thesis: Theses can vary anywhere between 15-100 pages and take the form of one or more research manuscripts (outlined below):

Introduction

- Background
- Objectives
- Expectations/hypotheses

Methods

- Study Site
- Data collection Methods
- Data Analysis

Results

- Cut and dry results/ figures and tables

Conclusions

- Summary of results and interpretation
- Local/ Broader implications

Literature Cited (All literature cited completely, minimal use of web resources, peer-reviewed literature (journal articles))

POLICIES

Academic Honesty: All assignments submitted are to be entirely your own work, unless you receive specific instructions to the contrary. All aspects of your course work are covered by the Honor system. Any suspected violations (e.g. cheating, plagiarism) will be promptly reported and appropriate action(s) will be taken. Honesty in your academic work will develop into professional integrity. The faculty and students of the University of Alaska Fairbanks will not tolerate any form of academic dishonesty.

Late Assignments: All assignments are due to your faculty advisor as indicated by the timeline agreed upon early in the thesis writing process. If you cannot turn in an assignment on time for a legitimate reason, it is your responsibility to contact your faculty advisor prior to the date in question in order not to receive a penalty.

EVALUATION/ GRADING

GRADE based on an absolute 90-80-70-60 Scale, with potential for plus-minus grades. For all senior theses, failure to turn in any of the required assignments is grounds for a failing grade. Because the thesis is based on the individual experience, a grading curve does not apply.

2 CREDIT SENIOR THESIS – FIRST SEMESTER (Letter Grade).

For your first semester of senior thesis, you will need to have a completed proposal with a project timeline attached, a completed progress report turned in to your faculty advisor, and have satisfactorily met deadlines specified in your timeline.

Proposal 20%

Data collection and analysis 20%

Progress Report 50%

Faculty evaluation of general performance and timeliness 10%

2 CREDIT THESIS – SECOND SEMESTER (Letter Grade)

Grade Breakdown:

Faculty evaluation of general performance and timeliness: 5%

SENIOR THESIS: 80%

Introduction: 20

Objectives: 10

Methods/Approach: 15

Results: 20

Discussion/Interpretation: 25

Literature Cited: 5

Oral or Poster presentation of results: 15%

Support/ Disabilities Services: If you need accommodation because of a disability, please contact the Experiential Learning Coordinator as soon as possible in order to make the necessary arrangements. She will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students.

INDEPENDENT STUDY

Some of our fisheries students may not have the option or be unsuitable for seeking either summer or school-year employment in the field of fisheries. With a petition, this option may be used fulfilling the Experiential Learning requirement. The possibility is presented to accommodate those students to insure that all of our graduates have benefited from an active, self-directed learning experience with an engaged mentor. The Experiential Learning Coordinator will work to match interested students with faculty mentors and topics that interest them.

With a faculty mentor and perhaps another student or two, students can plan a tutorial to study a specific topic in depth. Students should meet with their faculty mentor on a regular basis to track progress (at least bi-weekly during the semester). Students should work with their faculty mentor to design reading lists, assignments, and criteria for evaluating their work. Independent studies are like tutorials, only slightly more student-directed and individualized.

It should be noted that not all independent studies in fisheries will not automatically count towards the experiential learning requirement. To fulfill the requirement, the independent study will require a petition. Although students and their mentors are intentionally given a lot of breathing room in choosing the topic and structure of the independent study, it is important that the student is given a hands-on experience through their independent study that will enhance their professional development. Example topics include:

- 1) Use of otoliths to examine the ecology and stock dynamics of freshwater fishes.
- 2) A summary of fishery subsistence issues in the Yukon Flats Region: compilation of interviews of rural Alaskan residents.
- 3) Current events and fisheries: how professionals in the fisheries field can give effective interviews to the media.
- 4) History of the competition between wild and cultured salmon on the world market.

The faculty mentor and the Experiential Learning/ Internship Coordinator will work together to make sure that the student fulfills obligations towards the independent study and experiential learning. The description of the independent study submitted to the academic office should include a justification of why it should be considered a fulfillment of the experiential learning requirement.

NUNIVAK ISLAND SCIENCE CAMP

In June of 2007, SFOS professor Dr. Nicola Hillgruber (Co-P.I.), in cooperation with Eva Patton, Association of Village Council Presidents (AVCP), taught a fisheries curriculum for high school students from the Yukon-Kuskokwim-Delta as part of an NSF-funded summer science camp on Nunivak Island in the eastern Bering Sea. This program is supported by the Nunivak Island Mekoryuk Alaska (NIMA) Corporation and Nunivak Island Cultural Education and Adventures (NICEA). The goal of this science camp is to encourage high school students from the Yukon-Kuskokwim Delta to consider a career in Science and Technology and to pave their way toward an academic education. Participation in this science camp not only introduces rural Alaska high school students to higher education options, but also provides them with credit towards their undergraduate degree. The eleven students were instructed in external and internal fish anatomy, life history of fishes, proper fish handling, and basic fisheries techniques. Instruction took place in both classroom and field settings. Dr. Hillgruber led field trips to nearby watersheds, during which the students participated in different fish capture methods and the use of dichotomous keys to identify fishes and aquatic invertebrates in the field. Successful participation provided students with two college credits from the University of Alaska Fairbanks towards their undergraduate degree. The program was a great success; Dr. Hillgruber has received very positive feedback from students and fellow instructors, and students participating in the program expressed increased interest in pursuing an undergraduate fisheries degree at UAF.

We have modified and expanded the pilot curriculum from the summer of 2007 into a regular three-credit field course to be co-instructed by Drs. Hillgruber, Rosenberger, and Sutton. This program will not only provide rural Alaska and Alaska Native students with a hands-on learning in fisheries in an extraordinary setting, but also will greatly enhance the recent fisheries expansion by offering recruitment and retention opportunities of rural Alaskan and Alaska Native students, who are historically underrepresented in Fisheries Sciences. This under-representation is particularly problematic within Alaska, where rural and native communities play a key role in Alaska's commercial and subsistence fisheries. Bridging the gap between high school and undergraduate education through programs like the Nunivak Island Science Camp has been identified as an important component to increasing the number of Alaska natives and rural Alaskans working in Fisheries and Marine Sciences in the state. This effort will be a centerpiece in the Alaska Native and rural Alaskan recruitment effort.

Course Description: This summer field course provides the students with a first introduction to the biology and ecology of fishes and some basic fisheries techniques. During the lecture and lab sessions, the major external and internal anatomic features, life history patterns, collection of fishes will be introduced. Students will learn how to use keys to identify unknown specimens.

FISHERIES TECHNIQUES (FISH 315)

As part of the new, expanded curriculum for the University of Alaska Fairbanks, we are offering an experiential course in Fisheries Techniques.

Course Description:

This class introduces laboratory and field sampling methods used in aquaculture, limnology, aquatic entomology, and fisheries biology. An emphasis is placed on care and handling of live fish and the proper care and use of laboratory equipment and field sampling gears. This is intended to give you a broad overview of techniques rather than in-depth knowledge of particular methods. We place additional emphasis on the development of sampling protocols for collecting representative, non-biased fisheries and aquatic sciences data. Each week of class involves a lecture covering that week's activity and an active-learning laboratory or field exercise. Some field exercises are more involved and lengthy and will require weekend field excursions.

Overall Objectives of Fisheries Techniques:

1. To develop knowledge of the basic principles and techniques fisheries scientists regularly use.
2. To provide practical experience in aquatic resource assessment.
3. To sharpen critical thinking, written and oral communication, and professional skills relative to fisheries and aquatic science sampling considerations and issues.

Student Learning Outcomes:

1. Students will be able to safely, professionally, and ethically conduct field and laboratory fisheries exercises.
2. Students will have working knowledge and experience with techniques associated with the assessment of physical habitat, water quality, lower trophic levels, and fish populations in lentic and lotic environments. For example, a student will know how to use backpack electrofishing gear to sample stream fish and to obtain accurate information on the presence and abundance of fish species.
3. Students will be more familiar with data analysis and reporting, as well as decision-making as it pertains to the sampling of aquatic ecosystems. For example, a student will be able to write a short field plan and summarize data in a useable format for future study.

Conclusions

The goal of the Experiential Learning Program at the University of Alaska Fairbanks is to enhance opportunities for students to participate in fisheries research and management in occupational and research settings, expand student's professional development through mentorship, encourage pursuit of graduate studies, and better prepare them for their future careers in fisheries. This program will: (1) give undergraduate students occupational experience in fisheries management and research settings through cooperation with Alaska agencies, industry, and Alaska Native corporations; (2) provide research and mentoring opportunities for undergraduate students within UAF SFOS Oceanography and Marine Biology programs; (3) facilitate involvement and recruitment of rural Alaskan students in the program through participation in an NSF-sponsored field course for Alaska high school students that applies towards undergraduate credit at UAF (Nunivak Island Science Camp). Recognizing that Alaska's resources and its fishing and seafood industries are the most vibrant, healthy, and sustainable in the world, it is critical that we provide students with the training to serve the health of these fisheries and meet the challenges of future environmental and institutional changes. Through this program, SFOS provides support for education and training of undergraduate students in fisheries, contributing to life-long learning of students whose work will play a vital role in the long term health of Alaska's precious fisheries resources.

