



**Tech Prep Articulation Agreement  
Between  
University of Alaska Southeast (UAS)  
and  
Juneau School District (JSD)**

**Fisheries Technology  
School Year 2015-2016**

**Purpose:**

In addition to the general Tech Prep Agreement, the purpose of this articulation agreement is to outline the mutual understanding as we have agreed to the following process and criteria with respect to the program of Fisheries Technology.

**Course:**

The school district program will follow a curriculum coordinated with the administration and faculty of UAS pertaining to the following course:

**Fisheries – Alaska Salmon Culture I**

**FT S122** The first course of a two semester sequence which introduces students to the principles, concepts and methods used in the production of Pacific Salmon with an emphasis on modern fish culture techniques used by Alaskan producers. The course will cover all aspects of fry and smolt production. Topics include water quality, brood stock management, egg collection and incubation, egg and live fish transport, fresh and saltwater rearing techniques, feeding practices, growth, record keeping and fish health management. **3**


**Credits (3+0) Prerequisite: Biology**


Although teaching methods may differ, this course will be subject to the instructional objectives and outcomes of the attached UAS syllabus.


**Administration:**

1. Students must have an overall 2.0 GPA to register for university credit.
2. It is recommended that course work be completed at a level of 3.0 GPA.
3. Students must have successfully completed a full year of biology prior to enrolling in the Alaska Salmon Culture I course.
4. Students must successfully complete UAS – Alaska Salmon Culture I with a minimum course 2.0 GPA prior to registering for university credit in UAS – Alaska Salmon Culture II.
5. UAS program chairs shall review and approve all course syllabi and related curriculum documents to ensure they replicate the UAS course. This includes standardized course syllabi, course objectives, textbooks, tools, equipment, and methods for evaluation.
6. To receive concurrent credit, the student will register for the Tech Prep course at the beginning of the term in which the competencies will be completed. Registration for yearlong courses will take place during the fall semester.
7. The UAS grade posted will be the UAS grade earned for the course and submitted by the district instructor.
8. Student grades will be submitted by 5:00 p.m. of the final day of the district semester at [uaonline.alaska.edu](http://uaonline.alaska.edu).
9. Any change in instructor requires suspension of this addendum.

 8/21/15  
 Reid Brewer, Program Head Date  
 Fisheries Technology  
 University of Alaska Southeast

 4/24/2015  
 Ben Carney, Instructor Date  
 Fisheries Technology  
 Juneau School District

 8/31/2015  
 Dr. Chris Gilmer, Director Date  
 Sitka Campus  
 University of Alaska Southeast

 5-19-15  
 Mark Miller Date  
 Superintendent  
 Juneau School District

**FT 122 Fin Fish Culture I**  
**Course Syllabus for Fall Semester 2013**  
**University of Alaska Southeast, Sitka Campus**

**Instructor Information**

**Instructor: Jim Seeland**

**Office Location: 312 Cascade St., Sitka**

**Office Hours: M-T-W-Th, 3-5pm via Elluminate. Students can always contact me via email or cell**

**Office Phone: 907-747-7742**

**Cell Phone: 907-738-1190**

**Email: jim.seeland@uas.alaska.edu**

**Course Information**

**Room Location: Web delivery via Elluminate Live**

**Days and Time: Tuesdays 4:30 - 7:20 pm**

**Textbook: The instructor will make use of handouts, web-based information and publications to support classroom lectures.**

**Course Description**

Fin Fish Culture I is the first course of a two semester sequence which introduces students to the principles, concepts and methods used in the production of Pacific Salmon with an emphasis on modern fish culture techniques used by Alaskan producers. The courses will cover all aspects of fry and smolt production. Topics include water quality, brood stock management, egg collection and incubation, egg and live fish transport, fresh and saltwater rearing techniques, feeding practices, growth, record keeping and fish health management.

**Course Goals**

The primary goal of the course is to provide the student with a working knowledge of aquaculture methods practiced in modern Pacific Salmon hatcheries in the Northwest. Methods used to enhance and rehabilitate the five species of Pacific Salmon harvested in the commercial, sport and subsistence fisheries of Alaska and Northwestern United States will be covered in detail. The course will also provide the student with a basic understanding of the regulations and guidelines established by the State of Alaska to administer salmon enhancement programs through private non-profit aquaculture associations.

**Course Objective**

After successful completion of the course the student will have acquired the ability to demonstrate the skills necessary to gain entry-level employment in the field of salmonid aquaculture to include:

1. An understanding of Pacific salmon enhancement programs in Alaska and the regulatory process that governs them.
2. An understanding of the life histories of Pacific Salmon.
3. A demonstrable knowledge of all aspects of the culture of Pacific Salmon from brood collection to fry production.

**General Competencies**

The faculty of the University of Alaska has identified six competencies, which reflect general skills in computer usage, professional behavior, quantitative analysis, critical thinking, and communication (UAS Academic Catalog). Fin Fish Aquaculture I will touch all these competencies and progress in these skills is assessed through the demonstration of the student in achieving the course objective.

### **Course Organization**

The course is organized to follow the natural progression of culturing Pacific Salmon from brood stock collection to fry production. The emphasis will be on techniques used in Alaska but all instruction is applicable to the Northwestern United States. The course is offered in the fall and as such it will be possible for the class room instruction to closely mimic real time events that occur on a monthly basis in many enhancement programs and hatchery production schedules. Lectures at times may be held at local aquaculture facilities to better demonstrate the concepts and methods of aquaculture practices presented during classroom instruction.

### **Main topics of instruction will be:**

1. An overview of Pacific Salmon production in Alaska in the private and public sectors as well as the different types of aquaculture programs currently being used to enhance/rehabilitate the resource.
2. Life histories of each species of Pacific Salmon.
3. Program and hatchery design, site selection, water sources and water quality suitable for culturing Pacific Salmon.
4. Brood stock collection and Spawning Techniques.
5. Egg incubation, incubation systems and management, and record keeping.
6. Fry Production
7. Special Topics.

The course will use concepts and methods currently employed in the industry to support information presented in the lectures. Emphasis of the course material will focus on the practical aspects of modern salmon culture that will enable the student to confidently seek entry-level employment in the field of salmon aquaculture. Although there is no text currently available that specifically addresses all aspects of salmon aquaculture as practiced in Alaska, a publication by the Alaska Department of Fish & Game will serve as the primary reference for course work. The instructor will also rely upon a variety of publications from other government and state agencies involved in producing salmon. Topic specific handouts will be used extensively, other publications will either be provided to the student or put on the course website.

Student's progress and understanding of the subject matter will be evaluated through three exams given during the semester, assignments, class participation/attendance and a semester project .The instructor will provide suggestions for papers and projects early in the semester.

The instructor will record attendance. Absences are at times unavoidable, please contact the instructor ahead of time if you know you will be absent, limited opportunity will be provided to make up missed work. Student evaluations of the course will be conducted within the last three weeks of the semester.

### **A Summary of the Course Requirement**

Students Final Grade Will Be Based Upon:

Project	20% - 200 points
Exams (3 @ 100pts)	30% - 300 points
Assignments (10 @ 20pts)	20% - 200 points
<u>Class participation and attendance</u>	<u>30% - 300 points (15 meetings = 20pts/meeting)</u>
<b>Total</b>	<b>100% - 1,000 points</b>

## Grading System

The grading method will be the criterion-reference system. For more information on the grading policy please refer to the UAS Academic Catalog.

### Grade

A = 95% +

A- = 90-94%

B+ = 87-89%

B = 84-86%

B- = 80-83%

C+ = 77-79%

C = 74-76%

C- = 70-73%

D+ = 67-69%

D = 64-66%

D- = 60-63%

F = <60%

<b>Topic</b>	<b>Week</b>
<b>Introduction and overview of course</b> <b>Overview of Pacific Salmon Production in Alaska</b> ADF&G Oversight Regional Associations ADF&G Enhancement Programs Non-Regional Associations Historic Production Levels (ADF&G Annual Report)	9/3 and 9/10
<b>Brood Stock</b> Chums & Pinks Chinook Coho Sockeye Adult Holding	9/17
<b>Structure of the Salmon Egg</b>	9/24
<b>Spawning</b> Adult Anesthesia Methods of Collecting Eggs Fertilization & Sperm Activators Fecundity & Green Egg Enumeration Water Hardening & Egg Disinfection	10/1 <b>Exam 1 +            Review</b>
<b>Remote Site Egg Collection</b> Fish Transport Permit Brood Stock Capture and Holding Spawning Techniques Used in the Field ADF&G Guidelines for Sockeye Salmon Preparing Separate Gametes for Shipment	10/8
<b>Incubators</b> Types, Design & Function Typical Installations Substrates, Loading Densities and Flow Requirements	10/15
<b>Egg Incubation</b> Receiving Shipped Eggs Green or Eyed Loading Green Eggs Sensitivity of Eggs During Incubation Temperature Units Eyed Eggs Causes of Mortality	10/22, 10/29 <b>Exam 2 +            Review</b>

Shocking, Picking & Survival Estimate Loading Eyed Eggs Fungus Control and Treatments Shipping Eggs Thermal Marking Moist Incubation	
<b>Enhancement Projects Statewide</b> Lake Rearing Projects Lake Fertilization Fish Stocking Remote Rearing Sites Hatchery Releases	11/5
<b>Hatchery Site Selection</b> Locating a Suitable Water Supply Barrier Lakes River Systems Municipal Water Supplies	11/12
<b>Hatchery Design</b> Physical Plant Water Supply- Gravity, Recirculation, Pumped Bio-Criteria	11/19
<b>Water Quality</b> Dissolved Oxygen Carbon Dioxide pH, Alkalinity & Conductivity Dissolved Gasses and Gas Reduction Supplemental Oxygen & Aeration	11/26
<b>Fry Production</b> Hatch Common Diseases During Fry Development % Yolk Sac Absorption Volitional and Non Volitional Ponding Early Rearing	12/3 Exam 3 + Review

Final Exam Week = 12/9-14/13

Semester Project due by 12/6/13 @ 5pm