Course Change Request

Date Submitted: 01/19/18 11:16 am

Viewing: **WFSC 444 : Aquaculture I: Principles and Practices**

Last edit: 03/05/18 2:03 pm

Changes proposed by: lhutchins

**Catalog Pages referencing this course**
- Department of Wildlife and Fisheries Sciences
- WFSC:Wildlife & Fisheries Sci (WFSC)
- BS-WFSC-FAS: Wildlife and Fisheries Sciences - BS, Fisheries, Aquaculture and Aquatic Sciences Track
- MINOR-WFSC: Wildlife and Fisheries Sciences - Minor

**Contact(s)**

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lindsay Hutchins</td>
<td><a href="mailto:lhutchins@tamu.edu">lhutchins@tamu.edu</a></td>
<td>979-845-5704</td>
</tr>
</tbody>
</table>

**Rationale for Course**

**Edit**

The proposed changes are part of a routine curriculum review.

**Course prefix** WFSC  Course number  444

**Department** Wildlife & Fisheries Sciences

**College/School** Agriculture & Life Sciences

**Academic Level** Undergraduate

**Undergraduate course level justification (Select One)**

- College/Program Course Level Rubric

**Effective term** 2018-2019

**Complete Course Title**
Aquaculture I: Principles and Practices

**Abbreviated Course Title** AQUACULTURE I PRINCIPLES PRACT

**Catalog course description**
Scientific perspectives concerning major principles associated with fish production under controlled conditions; production techniques associated with prominent species produced via aquaculture throughout the world with emphasis on those cultured in the United States.

**Prerequisites and Restrictions**
Junior or senior classification or approval of instructor.

**Should catalog prerequisites / concurrent enrollment be enforced?** No

**Crosslistings** No  Crosslisted With

**Stacked** Yes No  Stacked with

**WFSC 623 - Aquaculture**

**In Workflow**
1. WFSC Department Head
2. Curricular Services Review
3. AG Committee Preparer UG
4. AG Committee Chair UG
5. AG College Dean UG
6. UCC Preparer
7. UCC Chair
8. Faculty Senate Preparer
9. Provost II
10. President
11. Curricular Services
12. Banner

**Approval Path**
1. 02/05/18 11:54 am David Caldwell (caldwell): Approved for WFSC Department Head
2. 02/05/18 6:39 pm Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 02/05/18 8:43 am Dawn Kerstetter (dkerstetter): Approved for AG Committee Preparer UG
4. 03/05/18 1:32 pm Bob Knight (bob-knight): Approved for AG Committee Chair UG
5. 03/05/18 1:35 pm Kim Dooley (k-dooley): Approved for AG College Dean UG
6. 03/05/18 8:17 pm Sandra Williams (sandra-williams): Approved for UCC Preparer
7. 03/09/18 3:36 pm Sandra Williams (sandra-williams): Approved for UCC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/
Semester: 4  
Contact Hour(s): (per week):
Lecture: 3  
Lab: 3  
Other: 0  
Total: 6

Repeatable for credit?  No
CIP/Fund Code: 0303010005
Default Grade Mode: Letter Grade(G)
Method of instruction: Lecture and Laboratory

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)  Yes

Learning Outcomes  Meets traditional face-to-face learning outcomes.
Describe how learning outcomes are met or provide justification why they are not met.
The course is structured the same as the on-campus course except distance students can review materials and complete assignments on their own schedule. As such, the learning outcomes for the distance course is equivalent for both delivery formats and are in alignment with the university's course level expectations.

Hours  Meets traditional face-to-face hours.
Describe how hours are met or provide justification why they are not met.
The contact hours listed for this non-traditional course meets University Rule 11.03.99. MI. The course clearly identifies instructor engagement and learning activities on the course syllabi, which meets the university contact hours for the credit awarded.
for the course.

Will this course be taught as a distance education course?  Yes  No
I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.  Yes  No
Is 100% of this course going to be taught in Texas?  Yes
Will classroom space be needed for this course?  Yes

This will be a required course or an elective course for the following programs:

Required (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
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<tbody>
<tr>
<td>(BS-WFSC-FAS) Wildlife and Fisheries Sciences - BS, Fisheries, Aquaculture and Aquatic Sciences Track</td>
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Elective (select program)

<table>
<thead>
<tr>
<th>Program(s)</th>
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<tr>
<td>(BS-WFSC-WEC+) Wildlife and Fisheries Sciences - BS, Wildlife Ecology and Conservation Option</td>
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Has/will this course be(en) submitted for core curriculum consideration?  No

Has/will this course be(en) submitted for
Course Syllabus

<table>
<thead>
<tr>
<th>Syllabus:</th>
<th>Upload syllabus</th>
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</thead>
<tbody>
<tr>
<td>Upload syllabus</td>
<td>Syllabus - WFSC 444 Aquaculture I - Non-traditional.pdf</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Letters of support or other documentation</th>
<th>No</th>
</tr>
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<tr>
<th>Additional information</th>
<th></th>
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| Reviewer Comments     | Sandra Williams (sandra-williams) (03/09/18 3:36 pm): UCC approved March 9 via e-vote. |

Key: 16438
Course description:
This course covers major principles of aquatic animal production under controlled conditions. Scientific perspectives on aquaculture production techniques associated with prominent species produced for food and stock enhancement throughout the world are presented. Special emphasis is given to species cultured in the United States.

Prerequisites: junior or senior classification or approval of instructor.

Course objectives:
Provide scientific perspectives concerning the major principles associated with aquatic animal production under controlled conditions.

Provide an overview of the production techniques associated with prominent species produced via aquaculture throughout the world with emphasis on those cultured in the United States.

Learning outcomes:
Students will be able to understand major concepts and principles of aquacultural production.

Students will be able to gain an appreciation for various types of aquacultural production systems and value their different applications.

Students will be able to integrate and apply principles of aquaculture to species that are either established or emerging as candidates for production under controlled conditions. In doing so, students will be able to demonstrate competence in understanding and adapting various production techniques in aquaculture.

1. Introduction – week 1
   a. History of aquaculture
   b. Current status and future perspectives

   Time in Class Est. - 2 hours

2. Water sources – weeks 2 and 3
   a. Ground water
   b. Surface water
   c. Municipal water

   Est. 4 hours

3. Water systems – weeks 4 and 5
   a. Earthen ponds
   b. Flowing-water systems including raceways and partitioned aquaculture systems
   c. Cages and net pens
   d. Recirculating systems

   Est. 5 hours

4. Site selection and facility construction – week 6
   a. Siting requirements
   b. Preferable characteristics

   Est. 5 hours
5. Water quality – weeks 7 and 8  Est. 10 hours
   a. conservative aspects of water quality including alkalinity, hardness, temperature, salinity, turbidity
   b. non-conservative aspects of water quality including dissolved oxygen, pH, ammonia, nitrite, nitrate
   c. Influence of primary productivity on water quality

6. Nutrition and feeding – week 9  Est. 6 hours
   a. Biochemistry of major nutrient groups including protein, lipid, carbohydrate, minerals and vitamins
   b. Principles of diet formulation and feed ingredients
   c. Feed processing methods
   d. Feeding practices, strategies and standards

7. Reproduction, genetics, and breeding – week 10 Est. 6 hours
   a. Reproductive physiology
   b. Genetic principals applied in aquaculture
   c. Induced spawning
   d. Breeding programs

8. Diseases and parasites – week 11 Est. 6 hours
   a. Major disease-causing organisms including bacteria, fungi, protozoans and viruses
   c. Chemotherapeutic agents
   b. Methods of disease treatment

9. Handling, harvesting and processing – week 12 Est. 6 hours
   a. Seining, grading and other handling procedures
   b. Hauling practices and considerations
   c. Product forms and processing procedures

10. Production Techniques – weeks 13 and 14 Est. 10 hours
    Techniques cover the following species: Catfishes, crayfishes, penaeid shrimp, baitfishes, sportfishes, carps, tilapia, red drum, salmonids, molluscan shellfish

Two Exams:  Mid-term and final exams.

Laboratory:  Approximately seven laboratory sessions will be held to apply and/or demonstrate principles discussed in lecture. Additional sessions will be held to learn and practice important techniques used in aquaculture.

Grading:  The final grade will be computed as follows: 35% for each exam, 25% for laboratory reports and 5% for class attendance and participation.

Grading scale:  
   A = 100 – 90
   B = 89 – 80
   C = 79 – 70
   D = 69 – 60
   F = < 59

Field trips:  Optional, to be arranged.

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity Statement

Aggie Honor Code

"An Aggie does not lie, cheat, or steal or tolerate those who do."
Please refer to the Honor Council Rules and Procedures on the website http://aggiehonor.tamu.edu

For all assignments and exams you will be required to sign the following:

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this academic work."

__________________________
Signature of student

Attendance and Make-up policy

Regular attendance and class participation is strongly encouraged and will constitute 5% of the final grade. Make-up exams will be given only with a university-authorized excuse. Please refer to student rule 7 at http://student-rules.tamu.edu/rule07.
WFSC 444 - Aquaculture I - Principles and Practices
Laboratory

Time and site: Wednesday 3:00-6:00. Laboratory exercises will take place at the Aquacultural Research and Teaching Facility off Highway 60 West (approximately 10 miles from campus).

Teaching Assistant: Fernando Yamamoto; yamamotofy@tamu.edu; 979-703-9204

Schedule: Each subject will be covered during one weekly laboratory period.

Grading: A written report must be submitted for each laboratory subject one week after each laboratory session. Specific instructions on areas to be addressed in the report will be provided with each assignment. Grading will be based on how well those areas are addressed.

If a laboratory session is missed, a make-up assignment will be made for that session.

The laboratory grade will constitute 25% of the final course grade.

<table>
<thead>
<tr>
<th>Lab. no.</th>
<th>Subject</th>
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<tbody>
<tr>
<td>1.</td>
<td>Design, construction and evaluation of pond, raceway and cage culture systems</td>
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<tr>
<td>2.</td>
<td>Water sources, supplies and water quality measurement</td>
</tr>
<tr>
<td>3.</td>
<td>Formulation, manufacture and analysis of diets; evaluation of feeding practices</td>
</tr>
<tr>
<td>4.</td>
<td>Diagnosis and treatment of diseases and parasites</td>
</tr>
<tr>
<td>5.</td>
<td>Induction of spawning in fish</td>
</tr>
<tr>
<td>6.</td>
<td>Harvesting of culture systems</td>
</tr>
<tr>
<td>7.</td>
<td>Transporting, grading and processing of aquaculture products</td>
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</tbody>
</table>