

# 2025 Caribbean Fisheries Professional Development Program

Distance Learning Scholarships in **Fisheries Science and Management**



## The 2025 Fall Semester Program

We are pleased to announce for the 2025 fall academic semester, a scholarship program for Gulf and Caribbean-based fisheries professionals to undertake distance learning courses provided by the University of Florida's Fisheries and Aquatic Sciences Program.

Competitive applicant(s) will be offered learning options that include classes in quantitative fisheries science, management and aquaculture.

These are challenging graduate-level courses that will reward participants with new knowledge and perspectives in fisheries science and management. Successful completion of this coursework will require substantial commitment on the part of selected applicants and of their government ministry or organization.

## Distance Learning (on-Line) Courses Offered

*Applicants will select one course from the following options.*

1. FAS 6705 – Fisheries & Aquaculture Economics
2. FAS 6355C – Fisheries Management
3. FAS 6357 – Marine Protected Areas
4. FAS 5015 – Aquaculture 1
5. FAS 6272 – Marine Ecological Processes

*See course descriptions and requirements appended to this document.*

## Application of Knowledge

To facilitate knowledge sharing and follow-up among program participants and sponsors, scholarship awardees will participate in periodic video-conference meetings with sponsors. Upon successful completion of an individual course, during a trial period, those who achieve the highest academic scholarship may be provided with the option to continue their coursework towards completion of a specialized certificate from the University of Florida in their chosen learning area.

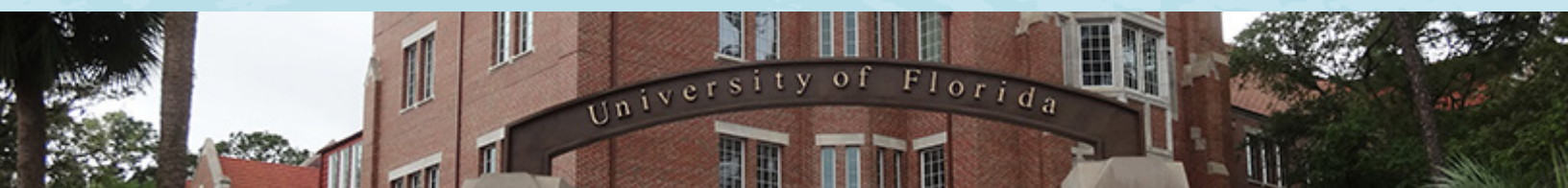
## Award Requirements

Applicants must be employed by a fisheries resource management NGO, ministry, or government agency located in the Gulf and Caribbean region or affiliated with a member state of the Caribbean Regional Fisheries Mechanism (Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago and the Turks and Caicos Islands. At a minimum, applicants must possess a bachelor's degree (e.g., BA or BS) or a professional degree (e.g., Juris Doctorate) from an accredited college or university.

*Candidates must prove fluency in English.*

## Program Sponsors

- Florida Sea Grant
- The Gulf & Caribbean Fisheries Institute
- The UF Fisheries & Aquatic Sciences Program
- The Caribbean Regional Fisheries Mechanism





## Application Parts

Please format your application according to the following six (A-F) sections.

### A. Contact information

Please provide your:

- Full name
- Full mailing address
- Telephone number
- Email address

### B. Job status

Please describe your current job and professional interests (250-500 words).

### C. Training interests

Please identify the certificate type and course of interest from the choices above. Describe how you will apply new knowledge or skills learned to an ongoing or propose a project that you would like to develop and explain how the implementation of that project would benefit from your participation in this training opportunity (500-750 words).

### D. Letter of endorsement

Please include a letter of endorsement from an individual who is familiar with your professional status and accomplishments.

### E. Educational credentials

Please include a scanned image of your Bachelors, Masters, Ph.D., or other professional degree (e.g., Law) that you earned from an accredited college or university.

### F. Professional accomplishments

Please provide a current resume. Your resume should highlight additional relevant education, training experiences, publications and/or reports, honors and/or awards.



## Submitting Your Application

- All six sections (A-F above) of the application must be labeled, scanned, combined in order, and emailed in Adobe Acrobat format (PDF file) to Florida Sea Grant c/o Dr. Charles Sidman (csidman@ufl.edu).
- Applications must be complete. Partial applications will not be accepted.
- Florida Sea Grant will confirm receipt of applications via email at the time they are received.
- Please direct questions regarding this opportunity to Florida Sea Grant c/o Dr. Charles Sidman (csidman@ufl.edu) or to the Caribbean Regional Fisheries Mechanism c/o Dr. Sandra Grant (sandra.grant@crfm.int).

## Application Deadline: June 20, 2025

*Please follow these instructions carefully when preparing your application.*

## Evaluation Criteria and Selection Process

*A panel consisting of program sponsors will evaluate applications according to the following criteria.*

- Quality of your response to training interests (application section C) - 50%
- Strength of the letter of endorsement (application section D) - 25%
- Educational / professional accomplishments (application sections E, F) - 25%

## Important Dates

Application Opens: May 5, 2025

Application Deadline: June 20, 2025

Scholarship Notification: July 11, 2025

Classes Begin: August 21; End: December 13, 2025

# *Aquaculture I*

## *FAS 5015 (3 credits) Fall, 2023*

Includes Continuing Education (CE) requirements

### **Course Description**

Provides an overview of the field of aquaculture, including water quality, production systems, nutrition, spawning, and the common fish and invertebrate groups cultured in the United States. The course is entirely web-based, with narrated PowerPoint lectures followed by readings and other resources for each learning topic. Weekly topics are included in asynchronous class discussions.

### **Instructors**

**Cortney L. Ohs, Ph.D.**  
[cohs@ufl.edu](mailto:cohs@ufl.edu)  
*UF/IFAS Indian River Research  
and Education Center (IRREC)  
2199 South Rock Road  
Ft. Pierce, FL 34945  
772-577-7348*

*Office hours: Available times will  
be announced and additional  
times by appointment*

**Jeffrey E. Hill, Ph.D.**  
[jeffhill@ufl.edu](mailto:jeffhill@ufl.edu)  
*UF/IFAS Tropical Aquaculture  
Laboratory (TAL)  
1408 24<sup>th</sup> Street SE  
Ruskin, FL 33570  
813-671-5230 x118*

*Office hours: Available times by  
appointment*

### **Student Learning Outcomes**

At the end of this course, each student will:

- Have an understanding of the basic principles of aquaculture
- Have an understanding of culture methods for common aquaculture species
- More effectively communicate through scientific writing
- Have a foundation for graduate studies in aquaculture or a career in aquaculture

### **Course Meeting Times**

This course is entirely web-based and students may access lectures, readings, and supporting materials at their own pace. Exams are available only on the dates listed in the syllabus.

## Required Texts/Readings

There is no required text for the course. Online readings will be provided for each learning topic (list attached). A computer with internet connection and sound speakers are required. The UF Canvas E-Learning site can be accessed at <http://elearning.ufl.edu/> using your Gatorlink account.

## Class Format, Policies on Attendance and Make-up Exams

The class is in an asynchronous, web-based format. There are no pre-requisites for taking this course. Attendance records will not be maintained. **It is the responsibility of the student to access on-line lectures, readings, quizzes, discussions, and exams and to maintain satisfactory progress in the course.** Two exams are scheduled (see schedule below) and are only available on the days scheduled. **Missed exams cannot be taken after the scheduled date without prior written consent of the instructor except under exceptional circumstances.** Cases of serious illness, bereavement, or activities covered under the Twelve-Day Rule will be considered for make-up. Appropriate documentation must be provided in all cases. Computer or other hardware failures, except failure of the UF E-Learning system, will not excuse students for missing exams. For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352-392-4357 (option 2). A writing or presentation assignment is due. Late assignments will be penalized 10% for the first day and 5% per day thereafter unless prior written arrangements are made or there is an exceptional circumstance.

### Continuing Education (CE) student requirements

CE students will complete all learning modules (including lectures, readings, discussions, and quizzes). CE students are NOT required to complete mid-term or final exams, or to complete a paper/presentation.

## Assignments

- *Learning modules consisting of one or more lectures (narrated PowerPoint or video), readings, supporting material, discussion, and a quiz are provided online for each topic. Learning modules build on previous modules so you should complete the learning modules in the order presented.*
- *Learning modules covered on the mid-term exam (modules 1-9) are available from the beginning of the semester. Learning modules covered on the final exam (modules 10-21) are available after the mid-term exam. You may access and complete learning modules at your own pace. Once a module is completed (quiz taken), you will have access to the next module.*



- *Each learning module will have a narrated PowerPoint presentation/video. Each presentation will have numerous photographs or diagrams and will summarize important information for each topic. You will be able to go back and view and listen to each slide as many times as you wish during the initial viewing of the lecture or at a later date.*
- *Each learning module has required readings beyond the lecture. This information will be covered on quizzes and exams. These files will all be made available for you to view on your computer, save, or print. There will also be references to additional (optional) readings if you desire further investigation of a topic.*
- *Most learning modules will have a discussion related to the topic of the module. Students are required to participate in at least 5 discussions in the first half of the semester (Modules 1-9) and at least 5 in the second half (Modules 10-21). Participation can include posting answers or additional, pertinent questions. A robust discussion rather than a few simple answers will make this a more useful enterprise. In particular, students posing questions/thoughts discussed by other students in the class will provide an excellent learning environment. Instructors and a TA will assist in moderating to ensure a fact-based discussion.*
- *Each learning module will have a quiz. The questions will require the student to go through the PowerPoint presentation, watch any attached videos, and read the assigned readings to answer the questions correctly. These quizzes will contribute to the grade. Quizzes in Modules 1-9 are taken prior to the Mid-term and quizzes in Modules 10-21 are taken prior to the final exam. All quizzes will be taken from your computer.*
- *Mid-term and final exams: Each exam will consist of 50 questions. Some of the questions will come directly from the lecture quizzes. These exams will consist of multiple choice questions and maybe a few matching questions. There may be a discussion/long-answer question. The mid-term will consist of questions from the first half of the learning modules. The final exam will consist of questions from the last half of the learning modules. The exams will be taken on your computer. Exams are only available on the days indicated.*
- *Graduate students will complete either a review paper or Voicethread presentation on a pre-approved aquaculture topic. The review paper or Voicethread presentation should cover all of the following: species, stages of culture, specific culture methods for each stage, system requirements, potential commercial application, current or potential markets. The review paper should be between 8 and 10 pages of text, have complete references, and include appropriate charts, photos, or tables. One or more examples will be provided. If you choose a Voicethread presentation, you will create and narrate a 20-minute PowerPoint presentation and load it on the Voicethread website for all students to view and comment on it, all of the required information for the review paper will also be included in the Voicethread presentation. The review paper or Voicethread presentation will be equivalent to an exam in points.*

## Evaluation of Student Learning

30% or 150 points	Quizzes (total of 205 points available—percentage earned placed on 150-point scale)
10% or 50 points	Discussion participation
20% or 100 points	Mid-term exam (Learning modules 1-9)
20% or 100 points	Writing or Voicethread assignment
20% or 100 points	Final exam (Learning modules 10-21)
500 points total	

## Grading Scale

Grade	Percentage	Points
A	90-100	≥ 450
B+	85-89.99	425-449
B	80-84.99	400-424
C+	75-79.99	375-399
C	70-74.99	350-374
D+	65-69.99	325-349
D	60-64.99	300-324
E	< 60	≤ 299

## Schedule of Class Topics

### Learning Modules

- |                                      |                               |
|--------------------------------------|-------------------------------|
| 1. Introduction to Aquaculture       | 10. Disease                   |
| 2. Fish Biology                      | 11. Prawns/Shrimp             |
| 3. Water Quality Management          | 12. Catfish                   |
| 4. Recirculating Aquaculture Systems | 13. Hybrid Striped Bass       |
| 5. Farm Ponds                        | 14. Tilapia                   |
| 6. Net Pens                          | 15. Salmonids                 |
| 7. Nutrition and Feed Manufacture    | 16. Freshwater Ornamentals I  |
| 8. Handling and Hauling              | 17. Freshwater Ornamentals II |
| 9. Spawning                          | 18. Marine Ornamentals        |
|                                      | 19. Marine Baitfish           |
|                                      | 20. Clams, Oysters, Scallops  |
|                                      | 21. Other Important Species   |



### **Important Dates:**

**August 23 – Classes start**

**August 23-October 8 – Modules 1-9 available (Quizzes and Discussions)**

**October 9-13 – Mid-term exam available**

**October 11-December 6 – Modules 10-21 available (Quizzes and Discussions)**

**November 17 – Writing/Voicethread assignment due**

**December 6 All modules- lectures, quizzes, assignments completed by 11:59PM on Dec 6**

**December 7-8 – Reading days – NO late quizzes or assignments accepted**

**December 9-15 – Final exam available**

## **Other Information**

### **Academic Honesty, Software Use, UF Counseling Services, Services for Students with Disabilities**

In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

**The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.**

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court.

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

### **Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

### **Students with Disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)



## **Readings for Aquaculture I**

### Introduction to Aquaculture

- USDA. 2013. Aquaculture. U.S. Department of Agriculture National Agricultural Statistics Service.
- USDA. 2013. 2012 Census of agriculture. U.S. Department of Agriculture National Agricultural Statistics Service.
- USDA. 2013. Census of aquaculture. U.S. Department of Agriculture National Agricultural Statistics Service.
- FAO. 2014. The state of world fisheries and aquaculture. Food and Agriculture Organization of the United Nations.
- FAO. 2015. FAO Global Aquaculture Production database updated to 2013—summary information. Food and Agriculture Organization of the United Nations.

### Introduction to Fish Biology

- FWC. 2016. Fish anatomy. Florida Fish and Wildlife Conservation Commission.  
<http://myfwc.com/fishing/freshwater/fishing-tips/anatomy/> .

### Water Quality Management

- Durborow et al. 1997. Ammonia in Fish Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 463.
- Durborow et al. 1997. Nitrite in Fish Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no.
- Hargreaves and Brunson. 1996. Carbon Dioxide in Fish Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 468.
- Hargreaves and Tucker. 2002. Measuring Dissolved Oxygen Concentration in Aquaculture. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4601
- Morgan and Brunson. 2002. Toxicities of Agricultural Pesticides to Selected Aquatic Organisms. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4600.
- Swann. A Fish Farmer's Guide to Understanding Water Quality. Illinois-Indiana Seagrant Program Aquaculture Extension. Fact sheet AS-503.
- USDA. Pond Fertilization: Initiating an Algal Bloom. U.S. Department of Agriculture Western Regional Aquaculture Center. Publication no: 104.

### Recirculating Aquaculture Systems

- Dunning et al. 1998. The Economics of Recirculating Tank Systems: A Spreadsheet for Individual Analysis. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 456.
- Masser et al. 1999. Recirculating Aquaculture Tank Production Systems: Management of Recirculating Systems. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 452.
- Losordo et al. 1998. Recirculating Aquaculture Tank Production Systems: An Overview of Critical Considerations. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 451.
- Losordo et al. 1999. Recirculating Aquaculture Tank Production Systems: A Review of Component Options. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 453.
- Swann. Potential of Recirculating Aquaculture Systems in the Midwest. U.S. Department of Agriculture Illinois-Indiana Seagrant Program Aquaculture Extension.

### Farm Ponds

- Steeby et al. 1998. Repairing Fish Pond Levees. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 104.
- Wellborn. 1988. Site Selection of Levee-Type Fish Production Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 100.
- Wellborn and Brunson. 1997. Construction of Levee-Type Ponds for Fish Production. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 101.

### Net Pens

- Masser. 1997. Cage Culture: Species Suitable for Cage Culture. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 163.
- Masser. 1997. Cage Culture: Cage Construction, Placement, and Aeration. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 162.
- Swann and Selock. 1994. Cage Culture of Fish in the North Central Region. U.S. Department of Agriculture Illinois-Indiana Seagrant Program. Technical Bulletin no: 110.

### Feed Manufacture and Nutrition

- Robinson and Li. 1999. Catfish Protein Nutrition. Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine Office of Agricultural Communications. Bulletin: 1090
- Robinson et al. 2001. A Practical Guide to Nutrition, Feeds, and Feeding of Catfish. Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine Office of Agricultural Communications. Bulletin: 1113

### Handling and Transporting Fish

- Cole et al. 1999. Shipping Practices in the Ornamental Fish Industry. Center for Tropical and Subtropical Aquaculture. Publication no: 131.
- Jensen and Brunson. 1992. Harvesting Warmwater Fish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 394.
- Jensen. 1990. Transportation of Warmwater Fish: Equipment and Guidelines. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 390.
- Jensen. 1990. Transportation of Warmwater Fish: Procedures and Loading Rates. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 392.
- Jensen. 1990. Transportation of Warmwater Fish: Loading Rates and Tips by Species. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 393.
- Swann. 1993. Transportation of Fish in Bags. U.S. Department of Agriculture North Central Regional Aquaculture Center. Fact Sheet Series no: 104.
- Watson et al. 2010. Shipping Fishes in Boxes. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 3903.

### Spawning

- Chapman and Eenennaam. 2007. Sturgeon Aquaculture - Specialized Techniques Determining the Stage of Sexual Maturity in Female Sturgeon for Artificial Spawning: The Egg Polarization Index or PI. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA153.



- Rottman et al. 1991. Introduction to Hormone-Induced Spawning of Fish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 421.
- Rottman et al. 1991. Capturing, Holding Handling, Transporting, Injecting and Brood Fish for Induced Spawning. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 422.
- Rottman et al. 1991. Determining Sexual Maturity of Broodstock for Induced Spawning of Fish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 423.
- Rottman et al. 1991. Hormonal Control of Reproduction in Fish for Induced Spawning. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 424.
- Rottman et al. 1991. Hormone Preparation, Dosage Calculation, and Injection Techniques for Induced Spawning of Fish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 425.
- Rottman et al. 1991. Techniques for Taking and Fertilizing the Spawn of Fish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 426.

### Disease

- Camus. 2004. Channel Catfish Virus Disease. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4702.
- Camus et al. 1998. Aeromonas Bacterial Infections — Motile Aeromonad Septicemia. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 478.
- Durborow. 2003. Protozoan Parasites. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4701.
- Durborow and Crosby. Mississippi State University Extension Service. Information Sheet 1390.
- Durborow et al. 1998 Ich (White Spot Disease). U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 476.
- Durborow et al. 1998. Columnaris Disease: A Bacterial Infection Caused by Flavobacterium columnare. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 479.
- Durborow et al. 2003. Saprolegniasis (Winter Fungus) and Branchiomycosis of Commercially Cultured Channel Catfish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4700.
- Hawke et al. 1998. ESC — Enteric Septicemia of Catfish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 477.
- Mitchell et al. 1998. Proliferative Gill Disease (Hamburger Gill Disease). U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 475.
- Lane and Morris. 2000. Biology, Prevention, and Effects of Common Grubs (Digenetic trematodes) in Freshwater Fish. U.S. Department of Agriculture, Iowa State University Department of Animal Ecology. Technical Bulletin Series no: 115.
- Swan and White. Diagnosis and Treatment of “Aeromonas hydrophila” Infection of Fish. U.S. Department of Agriculture Illinois-Indiana Sea Grant Program Aquaculture Extension. Fact Sheet AS-461.

### Prawns/Shrimp

- Ebeling and Rishel. Performance Evaluation of Geotextile Tubes. Aquaculture Systems Technologies, The Conservation Fund The Conservation Fund Freshwater Institute.
- Hargreaves. 2013. Biofloc Production Systems for Aquaculture. Channel Catfish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 4503.

### Catfish

- Durborow. 2000. Catfish Farming in Kentucky. Kentucky State University Aquaculture Program.
- Morris. 1993. Pond Culture of Channel Catfish in the North Central Region. U.S. Department of Agriculture North Central Regional Aquaculture Center. Fact Sheet Series no: 106.
- Ohs. 2004. Channel Catfish (*Ictalurus punctatus*) Production Methods.
- Ratliff. 2003. Scientists Tackle “off flavor” Catfish. Mississippi State University.
- Robinson et al. 1998. Feeding Catfish in Commercial Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 181.
- Robinson et al. 2001. A Practical Guide to Nutrition, Feeds, and Feeding of Catfish. Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine Office of Agricultural Communications. Bulletin: 1113
- Silva et al. 2001. Processing Channel Catfish. . U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 183.
- Tucker. 1991. Water Quantity and Quality Requirements for Channel Catfish Hatcheries. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 461.
- Tucker and Ploeg. 1999. Managing Off-Flavor Problems in Pond-Raised Catfish. . U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 192.
- Wellborn. Catfish Farmers Handbook. U.S. Department of Agriculture, Mississippi State University Extension Service. Publication 1549.

### Hybrid Striped Bass

- Dunning. Aquaculture in North Carolina: Hybrid Striped Bass. North Carolina Department of Agricultural and Consumer Services.
- Dunning and Daniels. 2001. Hybrid Striped Bass Production in Ponds: Enterprise Budget. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 3000.
- Hodson. 1989. Hybrid Striped Bass: Biology and Life History. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 300.
- Hodson and Hayes. 1989. Hybrid Striped Bass: Hatchery Phase. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 301.
- Hodson and Hayes. 1989. Hybrid Striped Bass: Pond Production of Foodfish. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 303.
- Kohler. 2004. A White Paper on the Status and Needs of Hybrid Striped Bass Aquaculture in the North Central Region. U.S. Department of Agriculture North Central Regional Aquaculture Center.
- Morris et al. 1999. Pond Culture of Hybrid Striped Bass in the North Central Region. U.S. Department of Agriculture North Central Regional Aquaculture Center. Fact Sheet Series no: 107.
- Ludwig. 2004. Hybrid Striped Bass: Fingerling Production in Ponds. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 302.
- McGinty and Rakocy. 1989. Caage culture of Tilapia. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 281

### Tilapia

- McGinty and Rakocy. 1989. Caage culture of Tilapia. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 281
- Popma and Masser. 1999. Tilapia: Life History and Biology. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 283.

- Rakocy, 1989. Tank Culture of Tilapia. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 282.
- Rakocy and McGinty. 1989. Pond Culture of Tilapia. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 280.
- Fornshell. 2001. Settling Basin Design. U.S. Department of Agriculture Western Regional Aquaculture Center. Publication no: 106.

### Salmonids

- Cain and Garling. Trout Culture in the North Central Region. U.S. Department of Agriculture North Regional Aquaculture Center.
- Fornshell. 2001. Settling Basin Design. U.S. Department of Agriculture Western Regional Aquaculture Center. Publication no: 106.
- Hinshaw. 1990. Trout Production: Handling Eggs and Fry. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 220.
- Hinshaw. 1990. Trout Farming A Guide to Production and Inventory Management. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 222.
- Hinshaw. 1999. Trout Production Feeds and Feeding Methods. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 223.
- Hinshaw et al. 1990. Budgets for Trout: Production Costs and Returns for Trout Farming in the South. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 221.
- Kinnunen et al. 1990. Salmonid Egg and Fingerling Purchases, Production, and Sales. U.S. Department of Agriculture North Central Region. Technical Bulletin Series no: 103.
- Ladewig and Morat. 1995. Rainbow Trout. U.S. Department of Agriculture Southern Regional Aquaculture Center. Publication no: 224.
- Crosby et al. 2005. Harvesting Ornamental Fish From Ponds. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-117.

### Freshwater Ornamentals I

- Cole et al. 1999. Shipping Practices in the Ornamental Fish Industry. Center for Tropical and Subtropical Aquaculture. Publication no: 131.
- Crosby et al. 2005. Harvesting Ornamental Fish From Ponds. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-117.
- Crosby et al. 2005. Grading Ornamental Fish. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-118.
- Crosby et al. 2005. On-Farm Transport of Ornamental Fish. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-119.
- Crosby et al. 2005. Preparation of Ornamental Fish for Shipping. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-120.
- Hill and Yanong. 2002. Freshwater Ornamental Fish Commonly Cultured in Florida. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Circular 54.

Kam et al. 2006. Feasibility of Direct Marketing Hawaii's Cultured Freshwater Ornamentals. Center for Tropical and Subtropical Aquaculture. Information Sheet no: 152.

Livengood and Chapman. 2007. The Ornamental Fish Trade: An Introduction with Perspectives for Responsible Aquarium Fish Ownership. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-124.

Watson and Shireman. 1996. Production of Ornamental Aquarium Fish. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-35.

#### Freshwater Ornamentals II

Bailey and Cole. 1999. Spawning the tinfoil barb, *Barbodes schwanenfeldi* in Hawaii. Center for Tropical and Subtropical Aquaculture. Publication no: 136.

Cole et al. 1999. A Manual for Commercial Production of the Gourami, *Trichogaster Trichopterus*, A Temporary Paired Spawner. Center for Tropical and Subtropical Aquaculture. Publication no: 135.

Cole et al. 1999. Spawning and Production of the Lemon Tetra *Hyphessobrycon pulchripinnis*. Center for Tropical and Subtropical Aquaculture. Publication no: 142.

Cole and Haring. 1999. Spawning and Production of the Serpae Tetra, *Hyphessobrycon serape*. Center for Tropical and Subtropical Aquaculture. Publication no: 138.

Tamaru et al. 1997. A Manual for Commercial Production of the Tiger Barb, *Capoeta tetrazona*, A Temporary Paired Tank Spawner. Center for Tropical and Subtropical Aquaculture. Publication no: 129.

Tamaru et al. 2001. A Manual for Commercial Production of the Swordtail, *Xiphophorus helleri*. Center for Tropical and Subtropical Aquaculture. Publication no: 128.

#### Marine Ornamentals

Bronson. Culturing Corals: Rules and Regs. Florida Dept of Agriculture and Consumer Services Division of Aquaculture. DACS-P-01545.

Ellis. Spawning and Early Larval Rearing of Giant Clams (Bivalvia: Tridacnidae). Center for Tropical and Subtropical Aquaculture. Publication no: 130.

Palmtag and Holt. 2001. Captive Rearing of Fire Shrimp (*Lyasmata debelius*). Sea Grant Office, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, Texas A and M University.

Watson and Hill. 2006. Design criteria for recirculating, marine ornamental production systems. *Aquacultural Engineering*. 34:157-162.

#### Marine Baitfish

Cassiano et al. 2009. Candidate Species for Florida Aquaculture: Pigfish, *Orthopristis chrysoptera*. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-160.

Creswell et al. 2007. Candidate Species for Florida Aquaculture: Atlantic Croaker, *Micropogonias undulates*. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-148.



- Ohs et al. 2010. Candidate Species for Florida Aquaculture: Pinfish, *Lagodon rhomboides*. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-168.
- Wallace and Waters. 2004. Growing Bull Minnows for Bait. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 1200.

#### Other Important Species

- Avery et al. 1998. Crawfish Production: Production Economics, Pond Construction and Water Supply. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 240.
- D'abramo et al. 2004. Semi-Intensive Production of Red Swamp Crawfish in Earthen Ponds without Planted Forage. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 2401.
- Davis and Locke. 1997. Culture of Largemouth Bass Fingerlings. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 201.
- Engle and Stone. 1996. Baitfish Production: Enterprise Budget. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 122
- Gunderson and Tucker. 2000. A White Paper on the Status and Needs of Baitfish Aquaculture in the North Central Region. U.S. Department of Agriculture North Central Regional Aquaculture Center.
- Heidinger. 2000. A White Paper on the Status and Needs of Largemouth Bass Culture in the North Central Region. U.S. Department of Agriculture North Central Regional Aquaculture Center.
- Hill and Yanong. 2002. Freshwater Ornamental Fish Commonly Cultured in Florida. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Circular 54.
- Lazur and Chapman. 1996. Golden Shiner Culture: A Reference Profile. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-34.
- Meronek et al. 1997. The Bait Industry in Illinois, Michigan, Minnesota, Ohio, South Dakota, and Wisconsin. U.S. Department of Agriculture Cooperative State Research Education and Extension Service, Georgia Department of Natural Resources Fisheries Section. Technical Bulletin Series no: 105.
- Stone and Thomforde. 2001. Common Farm-Raised Baitfish. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 120.
- Stone et al. 1998. Preparing and Stocking Golden Shiner Fry Ponds. U.S. Department of Agriculture, University of Arkansas Cooperative extension Program in Aquaculture and Fisheries. FSA9080-1M-12-98N
- Stone et al. Tank Spawning and Hatching of Golden Shiners. 1998. U.S. Department of Agriculture, University of Arkansas Cooperative extension Program in Aquaculture and Fisheries. FSA9081-1M-12-98N.
- Tidwell et al. 2000. Species Profile: Largemouth Bass. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 722.
- USDA. 1998. Feeding Practices for Baitfish. U.S. Department of Aquaculture Southern Regional Aquaculture Center. Publication no: 123.
- Wallace. 1998. Growing Bull Minnows in Alabama. Auburn University Marine Extension and Research Center. Circular ANR-1103.

Watson and Shireman. 1996. Production of Ornamental Aquarium Fish. University of Florida Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences. Document FA-35.

# Marine Ecological Processes

## Online section

### FAS 6272 (3 credits) Fall 2023

## Course Description

The course covers the ecological, biological, and environmental processes that drive patterns in productivity, behavior, population dynamics, and community structure in marine and estuarine ecosystems.

**Prerequisite:** Two semesters of Biology (BSC 2010 and 2011) or equivalent; General Ecology (PCB 4043) or equivalent; Graduate student status

## Instructors

Dr. Donald C. Behringer, Professor

Email: [behringer@ufl.edu](mailto:behringer@ufl.edu)

Office: Aquatic Pathology Laboratory, Emerging Pathogens Institute

Telephone: 352-273-3634

Office hours: Tuesday 1 – 2 pm, or by appointment

Mr. Lucas Jennings, PhD student (TA)

Email: [lucas.jennings@ufl.edu](mailto:lucas.jennings@ufl.edu)

Office hours: Online by appointment

## Student Learning Outcomes

At the end of this course, each student will have:

- Examined how ecological processes operate in the marine environment
- Compared how ecological concepts are unique and similar in the marine environment relative to terrestrial and freshwater ecosystems
- Assessed the function of the environment in marine ecology
- Examined how the biology and ecology of marine organisms interact
- Developed hypotheses for the outcomes of biotic or abiotic perturbations on populations and communities based on understanding of the ecological principles
- Learned the organisms that represent the trophic levels of a marine food web and their interrelationships.
- Examined the role of time and space in marine ecological processes
- Discussed and debated contemporary issues in marine ecology such as conservation, climate change, and disease
- Lead and moderated discussion of primary literature in marine ecology
- Learned how to develop, organize, and present a field-based lesson to the class via live or distance delivery

**Course Meeting Times** Asynchronous – web-based

## Texts/Readings

1. Primary literature (1 - 2 journal articles) will be assigned to supplement the material presented each week. The literature will be drawn from current or classic papers and be made available by at least the Friday prior to its coverage the following week. All assigned papers must be read and each student will lead and moderate the online discussion of at least two papers (see below for assignment details).

*Examples include:*

Hutchinson GE. 1961. The paradox of the plankton. *American Naturalist* 882: 137-145.

Hughes TP, Tanner JE. 2000. Recruitment failure, life histories, and long-term decline of Caribbean corals. *Ecology* 81: 2250-2263.

Cowen RK, Paris CB, Srinivasan A. 2006. Scaling of connectivity in marine populations. *Science* 311: 522-527.

Armstrong JB, Schindler DE. 2011. Excess digestive capacity in predators reflects a life of feast and famine. *Nature* 476: 84-88.

2. Readings from the following text will supplement the material presented in class and be made available to students:

Nybakken JW, Bertness MD (2005) *Marine Biology: An Ecological Approach*. Benjamin Cummings.

## Course Format, Policies on Attendance and Make-up Exams

### Course format:

This course is intended to provide graduate students with a broad overview of ecological principles operating in estuarine, nearshore coastal, and open ocean systems. The principles introduced will become increasingly complex and interwoven, highlighting the multiplicity of processes driving the patterns observed.

Students will initially be introduced to important primary producers and secondary consumers in each of these systems. Insights into physiological and population levels of organization will build on these basics. Environmental factors that influence species-specific and population-level interactions will be discussed as a transition to the concepts of community organization. All of this material will form a foundation for explaining how the structure and function of communities is maintained over different temporal and spatial scales.

The course will incorporate recorded lecture presentation of the subject matter with online discussions. Upon conclusion of each subject the class will critically discuss primary literature provided by the instructor. Each student will be assigned two weeks to lead and moderate the discussion of the primary literature (see assignment details below).

### Course delivery:

This course is co-taught at the undergraduate and graduate levels. Graduate students have additional assignment requirements and are expected to contribute a significantly higher level than undergraduates. Graduate students are also expected to interact with undergraduate students through discussions, presentations, and guidance that will increase learning for both groups and raise the intellectual caliber of the course.

**Attendance Policy:**

Lectures will be posted within hours after live delivery and will remain accessible for at least two weeks. Students are responsible for viewing the lectures during this period, participating in online discussion sessions while they are active, and for acquiring assignments. Students can only miss a maximum of three (3) discussion sessions. More than this will result in a five (5) point deduction from the final point total for each additional session missed.

**Make-up Policy:**

Students must request permission to make-up an exam or assignment *prior* to missing it. If prior permission is not granted the student will receive 0 points for the exam. Late assignments **will not** be accepted without prior consent of the instructor. Extenuating circumstances or situations that fall within university policies (see <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) will be addressed on an individual basis.

**Assignments****Critical Thinking Questions:**

Critical thinking questions will be posted on set Fridays and students will be required to answer the questions by the following week (see due dates on schedule below). The questions will be drawn from either the lecture material or the assigned reading from the previous weeks. The nature of the questions will vary, but will take the materials and concepts covered in class and require the students to adapt and apply that knowledge to solve a problem, plan a research/management approach, or provide a detailed answer, but with a system or problem that is different than discussed in class. The use of creativity and abstract reasoning will be expected. Responses must be submitted via Canvas by 10 pm on the due date. See schedule below for due dates.

**Field lesson presentation:**

This assignment will help graduate students learn how to present online material to a class in a field setting by requiring them to work as a group (2 – 3) to create and present a field-based video lesson to the class. Students must select a topic by September 14<sup>th</sup> and turn in a plan for their presentation by September 21<sup>st</sup>. **Missing the due date for either is a loss of 5 points on the final presentation grade.** Group presentations are due November 14<sup>th</sup> and must be 8-10 min in length (no longer!). If a group is not possible and an individual project is approved, it must be 5-8 minutes in length (no longer). Detailed instructions and a grading rubric for the project will be provided online. Each student will be graded individually, and the presentations will be graded as follows:

- Content (20 pts)
- Delivery (20 pts)
- Organization (20 pts)
- Originality (20 pts)
- Overall impression (20 pts)

**Literature Discussion:**

Each week we will have a **live, synchronous online discussion** about the papers assigned for that week. Each graduate student will lead and moderate the discussion of two journal articles during the course of the semester. The instructor and course TA will lead the first discussions,



so students are aware of what is expected. As noted above, students can only miss a maximum of three (3) discussion sessions. More than this will result in a five (5) point deduction from the final point total for each additional session missed. Students will be evaluated on:

- Preparation and knowledge of the material (12.5 pts)
- Organization and flow of discussion (12.5 pts)

#### Exams:

Exam 1 will cover all of the material presented to that point.

Exam 2 will cover all of the material presented in the course (~75% post-Exam 1).

### Evaluation of Student Learning

100 points	Exam 1
100 points	Field lesson presentation
100 points	Critical thinking questions (4 @ 25 points each)
50 points	Lead primary literature discussion (2 @ 25 points each)
100 points	Exam 2
<b>450 points</b>	<b>TOTAL</b>

### Grading Scale

Grades will be assigned based on the percentage of the total points earned.

<b>A</b>	<b>= 93 – 100%</b>
<b>A-</b>	<b>= 90 – 92%</b>
<b>B+</b>	<b>= 87 – 89%</b>
<b>B</b>	<b>= 83 – 86%</b>
<b>B-</b>	<b>= 80 – 82%</b>
<b>C+</b>	<b>= 77 – 79%</b>
<b>C</b>	<b>= 73 – 76%</b>
<b>C-</b>	<b>= 70 – 72%</b>
<b>D+</b>	<b>= 67 – 69%</b>
<b>D</b>	<b>= 63 – 66%</b>
<b>D-</b>	<b>= 60 – 62%</b>
<b>E</b>	<b>= &lt; 60%</b>

For additional information on the university grading policy please see:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

### Schedule of Class Topics

**Week of:**

<b>Week 1:</b> Course Introduction, Scheduling, and other Logistics	Aug 24
<b>Week 2:</b> Ocean Properties, Primary Producers, and Primary Production	Aug 29 & 31
<b>Week 3:</b> Primary Production (continued) (Dr. Savanna Barry – guest lecture <i>Sept 7</i> )	Sep 5 & 7

<b>Week 4:</b> Introduction to Consumers and Consumer Dynamics ( <i>Group field lesson <b>topic idea</b> due <b>Sep 14</b></i> )	Sep 12 & 14
<b>Week 5:</b> Resources and Competition ( <i>Weeks 2/3/4 Questions due <b>Sep 21</b></i> ) ( <i>Group field <b>lesson plan</b> due <b>Sep 21</b></i> )	Sep 19 & 21
<b>Week 6:</b> Feeding, Food selection, and Responses to Food	Sep 26 & 28
<b>Week 7:</b> Energy and Production Nutrient Cycles ( <i>Weeks 5/6 Questions due <b>Oct 5</b></i> )	Oct 3 Oct 5
<b>Week 8:</b> Larval Ecology, Recruitment, and Succession Midterm exam review	Oct 10 Oct 12
<b>Week 9:</b> MIDTERM EXAM Literature discussion	Oct 17 Oct 19
<b>Week 10:</b> Community Structure, Trophic Webs, and Biodiversity (Dr. Robert Lamb - guest lecture <b>Oct 24</b> )	Oct 24 & 26
<b>Week 11:</b> Spatial Structure Connectivity ( <i>Weeks 8/9/10 Question due <b>Nov 2</b></i> )	Oct 31 Nov 2
<b>Week 12:</b> Climate Change Marine Disease	Nov 7 Nov 9
<b>Week 13:</b> Biological Invasions (Dr. Jeff Hill – guest lecture <b>Nov 14</b> ) ( <i>Group field lessons due <b>Nov 14</b></i> ) ( <i>Weeks 11/12 Question due <b>Nov 16</b></i> )	Nov 14 & 16
<b>Week 14:</b> View and evaluate graduate student presentations <b>No Class (Thanksgiving)</b>	Nov 21 Nov 23
<b>Week 15:</b> Conservation and Restoration Contemporary Issues in Marine Ecology	Nov 28 Nov 30
<b>Week 16:</b> Final Exam Review	Dec 5
<b>FINAL EXAM 3:00 – 5:00pm</b>	<b>Dec 11</b>

## Additional References

### Web Sites :

Growth, competition, and predator-prey models  
<http://www.blackwellpublishing.com/townsend/models/index.htm>

### Other literature sources:

Web of Knowledge

[http://apps.isiknowledge.com/UA\\_GeneralSearch\\_input.do?product=UA&search\\_mode=GeneralSearch&SID=4C5mNGg@8e3@GGm611N&preferencesSaved=](http://apps.isiknowledge.com/UA_GeneralSearch_input.do?product=UA&search_mode=GeneralSearch&SID=4C5mNGg@8e3@GGm611N&preferencesSaved=)

Townsend CR, Begon M, Harper JL (2003) Essentials of Ecology (2<sup>nd</sup> Edition). Blackwell Publishing, Oxford.

Real LA, Brown JH (1991) Foundations of Ecology. The University of Chicago Press, Chicago.

## Other Information

### POLICIES AND REQUIREMENTS

This syllabus represents current plans and objectives for this course. As the semester progresses, changes may need to be made to accommodate timing, logistics, or to enhance learning. Such changes, communicated clearly, are not unusual and should be expected.

### ABSENCES AND MAKE-UP WORK

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course.

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

### SEMESTER EVALUATION PROCESS

We are always looking to improve the course experience and student assessments of instruction is an important part of our efforts to improve teaching and learning. We want to ensure your ideas are heard, so please be encouraged to fill out the student assessments offered for the course.

**At the end of the semester**, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course

menu under GatorEvals, or via <https://ufl.bluer.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

## **ACADEMIC HONESTY AND STUDENT CONDUCT**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* The principles guiding the UF honor and conduct codes are guided by principles of respect for people, property, fairness, laws, regulations, and academic integrity. You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code process, please see <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code> and for the most up-to-date version of the student honor code and student conduct code, please see <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.

**NETIQUETTE (COMMUNICATION COURTESY):** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats, guided by the UF principles of respect. Failure to do so may result in loss of participation points and/or referral to the Dean of Students' Office.

## **SOFTWARE USE**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate. Misuse of software is outlined in the student conduct code found here <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

## **SERVICES FOR STUDENTS WITH DISABILITIES**

If you have any kind of disability, whether apparent or non-apparent, learning, emotional, physical, or cognitive, and you need some accommodations or alternatives to lectures, assignments, or exams, please reach out to the Disability Resource Center to discuss reasonable accommodations for your access needs. The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the

instructors when requesting accommodation. You are also encouraged to reach out to the instructors to discuss ideas for reasonable accommodations for your access needs.  
0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

## **CAMPUS HELPING RESOURCES**

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu) | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFRC Academic Hub <https://ufl.instructure.com/courses/303721>

## **INCLUSIVE LEARNING ENVIRONMENT**

We strive to develop and maintain a classroom that values and includes people with diverse backgrounds, beliefs, and life experiences, promote equitable opportunities through the work we conduct, and make continuous efforts to review, self-critique, adapt, and improve. This course embraces the University of Florida's Non-Discrimination Policy, which reads,

*The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.*

If you have questions or concerns about your rights and responsibilities for an inclusive learning environment, please speak with any of the instructors or TA or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

## **LAND ACKNOWLEDGMENT**

This course is taught in the historic territories of the Timucua, Seminole, and crossroads of the Native American peoples who long inhabited this land. We honor and acknowledge the land and waters themselves as well as the people who have stewarded it for generations. We are called to continue to learn about the history of the systems we study as well as consider their future.

## **STUDENT LIFE, WELLNESS, AND COUNSELING HELP**

We encourage students to take care of their health and wellness. Mental health and wellness can affect how we think, feel, and act as we cope with life and may impact success as a student. Struggles with mental health are common—more than half of all Americans will be diagnosed with a mental disorder at some time in their life. Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*: Counseling Services, Groups and Workshops, Outreach and Consultation, Self-Help Library, Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)
- Student Success Initiative, <http://studentsuccess.ufl.edu>.



## **STUDENT COMPLAINT PROCESS**

The School of Forest Fisheries & Geomatics cares about your experience and we will make every effort to address course concerns. We request that all of our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered.

If you have a more urgent concern, your first point of contact should be the SFRC Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: <http://www.distance.ufl.edu/student-complaint-process>

Students in face-to-face courses: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

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## **FAS 6355c Fisheries Management**

Course Syllabus, Fall 2023, 4 Credits

Lectures for all sections: online

Weekly discussion (on-campus)\*: Wednesday 09:00– 10:30 AM, NZ 222

Weekly discussion (online): Wednesday 8:00-9:30 PM Eastern, Zoom Meeting

(\*contingent on participation of at least ten students)

### **Course Description**

Integrating scientific, social, political and legal factors in fisheries management.

### **Overview**

Fisheries are an important source of food and recreational opportunities, yet many are in poor shape due to overfishing and/or habitat degradation. Managing fisheries sustainably and restoring fisheries that have been degraded is a complex task that requires a broad set of competencies from fisheries professionals. The course aims to help students develop key competencies including knowledge of essential ecological, social, institutional, and economic dimensions of fisheries management; skills in fisheries systems analysis, interview and social survey techniques, resource assessment and modeling, institutional analysis, participatory planning and reflection-in-action; and a repertoire of case studies. The course also aims to foster motivation for problem solving in an interdisciplinary and participatory manner, critical thinking and innovation. Lectures will be used to outline key concepts and approaches, and laboratories and homework assignments will provide experience in applying key methods. Throughout the course, all students will develop a case study on a fishery of their choice, applying what they have learned, providing concrete examples for class discussions, and eventually providing an independent review and recommendations for the further management of the fishery. Students will also conduct an intervention design practicum aimed at addressing a current fisheries management issue through innovative science and/or professional practice. This interdisciplinary course is intended for graduate or undergraduate students majoring in any subject relevant to fisheries management including fisheries/aquatic science, wildlife, resource economics, geography, and political science.

### **Course Objectives**

- 1) Appreciate the complex, multi-dimensional nature of fisheries management problems and the benefits of integrative-interdisciplinary approaches to addressing them
- 2) Understand key relevant concepts in the areas of fisheries systems, stakeholder characteristics and behavior, fisheries governance, fish stock dynamics, fisheries

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- economics, and management and planning processes
- 3) Gain practical skills in interview and survey methods, institutional analysis, fisheries assessment, economic analysis, and participatory planning.
  - 4) Gain practical experience in analyzing fisheries management issues in a problem- and outcome-oriented, interdisciplinary manner.
  - 5) Strengthen communication skills.
  - 6) Gain practical experience in designing an intervention aimed at addressing a current fisheries management issue through scientifically informed professional practice.

### **Teaching and learning approach**

The course involves both, structured lectures and labs/homework assignments and more open-ended, student-driven learning. From you as a student, the course requires enthusiasm for grappling with complex and poorly defined real-world fisheries management issues (“messes”). Many students enjoy these challenges but some don’t. If you want to be told what to do at all times, are uncomfortable engaging with problems that don’t have a right or wrong answer, then this course may not be for you.

The course is available fully online or in hybrid online and on-campus format, the latter contingent on a minimum of five students participating in the on-campus sessions. All students are expected to attend weekly, synchronous discussion sessions regularly.

### **Instructors**

Dr. Kai Lorenzen (Professor), Fisheries and Aquatic Sciences, SFFFGS, 7922 71<sup>st</sup> Street, Gainesville, FL 32653. Phone 352-273 3646, Email: [klorenzen@ufl.edu](mailto:klorenzen@ufl.edu),  
Web Page: <http://fisheriessolutions.org>.  
Office hours: Tuesdays 11 am to 12 noon

### **Guest lecturers**

Dr. Edward Camp, SFRC, UF (fisheries economics)  
Dr. Chelsey Crandall, SFRC, UF (communication, conflict management)  
Dr. Nia Morales, WEC, UF (quantitative social surveys)

### **Course delivery**

The class is offered in “reverse classroom” mode. Lectures are available online and can be watched at any time within the relevant module. Lectures are complemented with live discussion sessions and various classwork assignments. Discussion sessions are held online in Zoom (voice and video chat). Discussion sessions are an essential part of the class and participation is required and graded.

All students must upload a personal introduction clip and an introduction clip about their case

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study fishery via the VoiceThread system. Students will also use voice thread to upload case study presentations.

All participants are encouraged to maintain contact and discuss questions throughout the course using a suitable means agreed upon at the start of class (e.g. Canvas chat room).

### **E-learning and distance learning support**

A Canvas site is available. Course material and interactive elements are organized as follows:

#### Announcements

- All important announcements are posted on the Canvas site and copied to your email.

#### Resources

- Access to resources such as lecture slides and key readings is via a Canvas web interface, organized by module/week. Lecture slides uploaded for sessions that have not yet been held are preliminary and are normally updated around the time a lecture is given (the course evolves constantly and so do the lectures!).
- Coursework assignments are posted under *Assignments*. Please turn in your coursework through the *Assignments* functionality. (We will accept assignments submitted by email, but only under exceptional circumstances).
- You will receive feedback and grades through the same channel.

#### VoiceThread

- Use VoiceThread to upload and view clips, presentations etc.

#### Chatroom

- Please use Canvas chat room to post questions and thoughts of general interest to the class.
- Post your questions for the discussion sessions here – by the previous day at the latest!

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## Outline of topics, lectures/activities and recommended readings

Topic	Lecture/activity	Recommended reading
<b>Class introduction, problem definition and synthesis</b>	Introduction to the course: Course overview, student introductions.	
	Discussion: Importance of fisheries, what do we expect from a 'good' fishery, how do fisheries measure up, what is the role of professionals in achieving good fisheries?	FAO 2020; Gutierrez et al. 2011; Hilborn 2007b; Post et al. 2002; Welcomme et al. 2010; Worm et al. 2009; Asche et al. 2018.
	Course synthesis: Problem-solving in fisheries management	
<b>Fisheries systems</b>	Understanding fisheries systems and identifying options for improving outcomes	Degnbol & McCay 2006; Garcia & Charles 2007; Lorenzen 2008
	Case study presentations and discussions	
	Reflective practice in fisheries management	Schön 1983; Sarewitz 2004; Jentoft 2006
<b>Fisheries governance</b>	Fisheries governance	Sutinen 1999; Hilborn et al. 2005; Ostrom 2007; Branch 2009; Fujita et al. 2010; Gutierrez et al. 2011, NOAA 2007
	South Atlantic Fishery Management Council (SAFMC) Meeting: Class will follow selected parts online	Documents will be on <a href="https://safmc.net/">https://safmc.net/</a>
	SAFMC Scientific and Statistical Committee Meeting: Class will follow selected parts online	Documents will be on <a href="https://safmc.net/">https://safmc.net/</a>
	Florida FWC Meeting: Class will follow selected parts via the Florida Cannel	Documents will be on <a href="http://www.myfwc.com">www.myfwc.com</a>
	Reforming fisheries management: change and processes	McCay (1989); Grimes (1996); Harris et al. (2007); Shelley (2012); Wondolleck & Yaffee (2000)



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<b>Understanding and engaging stakeholders</b>	Stakeholders as individuals: values, attitudes, assets and drivers of behavior	Salas & Gaertner 2004; Smith et al. 2005; Arlinghaus & Mehner 2006; Hutt & Bettoli 2007
	Qualitative interview studies in fisheries management	Acheson 1982; Weiss 1994; Kuehn et al. 2006; Adkins 2010; Turner 2010; Guion et al. 2011
	Quantitative social surveys (Nia Haynes Morales)	Dillman et al. 2009
	Stakeholder engagement and workshop facilitation (Chelsey Crandall)	Tierny 2011
	Managing fisheries conflicts (Chelsey Crandall)	Covey 1990; Fisher & Uri 1991, Pomeroy et al. 2007; Pomeroy & Rivera-Guieb 2006
	Communicating Fisheries Science (Chelsey Crandall)	Kaplan & Kaplan 2009, Monroe et al. 2009
<b>Quantitative assessment of fisheries status and management options</b>	Fisheries assessment using biomass dynamics models	Hilborn & Walters 1992 (Ch. 8); Haddon 2001 (Ch. 10); Cooper 2006; Methot 2009; Edwards et al. 2012; Lorenzen et al 2016
	Fisheries assessment: Models and data	Hilborn & Walters 1992 (Ch. 10); Haddon 2001 (Ch. 2, 11); Cooper 2006; Edwards et al. 2012
	Economics of fisheries management (Ed Camp)	Milon et al. 1999; Conrad 1999 (Ch. 3); Whitmarsh 2011 (Ch. 2)
<b>Ecosystem, spatial and recreational fisheries management</b>	Ecosystem-based fisheries management	Francis et al. 2006; Hobday et al. 2011; Rice 2011
	Spatial and place-based fisheries management	Fogarty & Botsford 2007; Lorenzen et al. 2010
	Managing recreational fisheries: do different principles apply?	Radomski 2001; Post et al. 2002; Arlinghaus et al. 2007; Arlinghaus et al. 2019; Johnston et al. 2014; TRCP

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		2014; Sutinen & Johnston 2003
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## **Assessment & Grading**

A variety of different assessment approaches will be used, with emphasis on evaluating understanding of key concepts, development of core skills, critical thinking, and creative problem solving. The different assessments and their weighting are:

Lab reports (4)	20%
Case study presentation	20%
Fisheries project design practicum	20%
Participation in discussions	15%
Interim exam	<u>25%</u>
Total	100%

### Grading information

Grades will be allocated as: A (93 - 100 %), A- (90 - 92 %), B+ (86 - 89 %), B (82 - 85 %), B- (78 - 81 %), C+ (74 - 77 %), C (67 - 73 %), C- (63 - 66 %), D+ (59 - 62 %), D (55 - 58 %), D- (51 - 54 %), E (< 50 %).

Click here for UF grading information for students: <http://www.registrar.ufl.edu/hubstudents.html>

## **Coursework requirements**

### Introductory clips

All students are required to upload introductory clips about themselves and their case study to Voice Thread.

### Lab/homework assignments

Lab/homework assignments are designed to help students exercise key skills in qualitative interviewing, quantitative social surveys, fisheries assessment, and bio-economic analysis. Reports are due within 2 weeks of the assignment being given.

Four lab/assignment reports are required:

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- 1) Qualitative interviews
- 2) Fisheries assessment: biomass dynamics modeling
- 3) Quantitative social surveys
- 4) Bio-economic modeling

Reports should concisely address the questions posed in the assignments in writing, supported by pertinent figures and/or tables. It is not necessary to provide introductory material or describe methods, though knowledge and understanding of both should be evident in the presentation and interpretation of results. Lab reports will normally be around 3-5 pages in length.

Grading criteria: The report answers all questions posed in the assignment in a clear and concise manner. Text is supported by key figures and/or tables, all of which are appropriately labeled, described in a legend and referenced in the text. Interpretation of results shows good understanding of the underlying concepts and methods.

#### Integrative fisheries case study

All students will develop an integrative case study on a fishery or a fisheries-related natural resource of their choice. Where appropriate, students are encouraged to select problems related to their research or professional practice. The aim of the case study is to conduct and present an integrative-interdisciplinary analysis of the outcomes of a fishery, the factors that led to these outcomes, options for improving management (or sustaining positive outcomes), and generic lessons that can be learned from the case study. Taken together, the case studies will become part of the student's 'repertoire'.

In the spirit of reflective practice, students will develop the case study in multiple steps interspersed with feedback and reflection.

- 1) Identification of case study topic
- 2) Completion of an information checklist summarizing key information on all attributes of the case study and information sources
- 3) Instructor feedback
- 4) Initial case study presentation (VoiceThread)
- 5) Peer and instructor feedback
- 6) Final case study presentation (VoiceThread)

Grading criteria: The presentations provide a clear, integrative and concise assessment of the fishery, possible management responses, and any generic lessons that can be learned from this specific case. Statements are appropriately supported by reference to publications, information from stakeholders, or personal observations. The presentation shows ability to synthesize and critically evaluate information.

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### Intervention design practicum

In the practicum, students design an intervention aimed at addressing a fisheries management problem through innovative professional practice. Often, but not always, this intervention will be related to the case study system. Students also have the option of obtaining credit for implementing their projects as part of a special study following the class.

Intervention design involves:

- a clear analysis of the management problem
- a realistic appreciation of what the proposed intervention will contribute to addressing the problem and over what time scale
- a set of well-designed, scientifically and professionally sound, and fully developed intervention activities
- an assessment of resources required to implement the intervention (budget, personnel, etc.)

Proposed interventions may include e.g. interview studies or social surveys, modeling studies involving interaction with stakeholders, conducting stakeholder workshops, or development of educational materials. All proposed activities must be grounded in sound science and professional practice and defined the extent that they are ready to be implemented.

The intervention design practicum is conducted in four steps:

- (1) Drafting of a pre-proposal
- (2) Peer and instructor review of pre-proposals
- (3) Development of the main proposal including consultation with stakeholders, pre-testing of activities etc.
- (4) Submission of final proposal.

The pre-proposal should be about 3 pages in length and include: (a) background; (b) problem definition; (c) aims and objectives; (d) activities; (e) timeline; (f) outputs (g) intended contributions of the intervention to addressing the problem identified. The full proposal should follow the same format and be about 10 pages in length, plus appendices.

Grading criteria: the management problem is clearly identified; the intervention is clearly described, of appropriate scope, and designed to a high standard.

### Interim exam

A 'take-home' interim exam will be held in week 9. The exam is open-book and will consist of essay questions.

### Discussion meetings

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Discussion meetings are held weekly for all students. The meetings are synchronous voice meetings in Zoom or in-person (when offered) with occasional screen sharing. The purpose of the meetings is to discuss the topics covered in lectures, lab/homework assignments and any other issues or questions that may arise in the course of the class.

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## Schedule

*Note: details of the schedule may change in response to external circumstances or pedagogical needs of the course. Always check Canvas for the most current version.*

Week (starting)	Lectures	Lab/ assignment	Integrative case study	Design practicum
<b>1 (8/21)</b>	Fisheries Management: Introduction  Understanding Fisheries Systems (I & II)	Introductory clip on VoiceThread		
<b>2 (8/28)</b>	Fisheries Governance (I, II & III)  Stakeholders as Individuals (I & II)		Topic	
<b>3 (9/04)</b>	Qualitative Interview Studies in Fisheries Management	Assignment Interviewing opens		
<b>4 (9/11)</b>	Reforming Management: Change and Process  <i><b>SAFMC Council Meeting 9/11-14</b></i>		Information checklist	
<b>5 (9/18)</b>	Fisheries Assessment Using Biomass Dynamics Models (I & II)	Assignment Biomass Dynamics opens		
<b>6 (9/25)</b>	Managing Fisheries Conflicts  Communicating Fisheries Science			
<b>7 (10/02)</b>	Social Survey Design and Implementation  Engaging Stakeholders: Meetings and Workshops  <i><b>FWC Commission Meeting 10/4-5</b></i>	Assignment Social Surveys opens	Presentation (due 10/08)	



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<b>Week (starting)</b>	<b>Lectures</b>	<b>Lab/ assignment</b>	<b>Integrative case study</b>	<b>Design practicum</b>
<b>8 (10/09)</b>	Case study presentations  Synthesis of presentations  <b><i>SAFMC Snapper-Grouper AP Meeting</i></b>		<i>Peer feedback on pres.</i>	
<b>9 (10/16)</b>	Interim exam (open 10/14-10/22)			Pre-proposal (due 10/20)
<b>10 (10/23)</b>	Managing Recreational Fisheries  Recreational Fisheries Allocation  <b><i>SAFMC SSC Meeting</i></b>			
<b>11 (10/30)</b>	Fisheries Economics	Assignment Economics opens		<i>Peer feedback on pre-prop.</i>
<b>12 (11/06)</b>	Ecosystem-Based Management  Spatial and Place-Based Management			
<b>13 (11/13)</b>	Reflective Practice in Fisheries Management			
<b>14 (11/20)</b>	<b>No lectures or discussion meetings (Thanksgiving)</b>		Final presentation (due 11/20)	
<b>15 (11/27)</b>	Discussion on design projects			Final proposal (due 11/30)
<b>16 (12/04)</b>	Class Synthesis: Problem- Solving in Fisheries Management			

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## Textbooks

There are no required text books, but students may refer to the following for many aspects of the course:

Charles, A.T. 2001. *Sustainable Fishery Systems*. Wiley-Blackwell, London.  
Haddon, M. 2011. *Modelling and Quantitative Methods in Fisheries*. Chapman and Hall, London.

## Key readings

- Acheson, J.M. (1975) Fisheries management and social context: the case of the Maine lobster fishery. *Transactions of the American Fisheries Society* 104: 653-668.
- Adkins, T.J. (2010) Fishing for masculinity: Recreational fishermen's performances of gender. M.A. Thesis, Kent State University. 64pp.
- Allison, E.H. & Ellis, F. (2001) The livelihoods approach and management of small-scale Fisheries. *Marine Policy* 25: 377-388.
- Arlinghaus, R. & Mehner, T. (2006) Determinants of management preferences of recreational anglers in Germany: Habitat management versus fish stocking. *Limnologica* 35: 2-17.
- Arlinghaus, R. et al. (2007) Understanding the complexity of catch-and-release in recreational fishing: an integrative synthesis of global knowledge from historical, ethical, social, and biological perspectives. *Reviews in Fisheries Science* 15: 75-167.
- Arlinghaus, R. et al. (2019). Opinion: Governing the recreational dimension of global fisheries. *Proceedings of the National Academy of Sciences* 116: 5209-5213.
- Asche, F. et al. (2018). Three pillars of sustainability in fisheries. *Proceedings of the National Academy of Sciences* 115: 11221-11225.
- Branch, T. (2009) How do individual transferable quotas affect marine ecosystems? *Fish and Fisheries* 10: 39-57.
- Charles, A.T. (2001) *Sustainable Fishery Systems*. Oxford: Blackwell Science.
- Cochrane, K.L., Andrew, N.L. & Parma, A.M. (2011) Primary fisheries management: a minimum requirement for provision of sustainable human benefits in small-scale fisheries. *Fish & Fisheries* 12: 275-288.
- Conrad, J.M. (1999) *Resource Economics*. Cambridge University Press.
- Cooper, A. (2006) *Guide to Fisheries Stock Assessment: from Data to Recommendations*. University of New Hampshire/NH Sea Grant.
- Covey, S.R. 1990. Principles of Empathic Communication. In *The Seven Habits of Highly Effective People*. New York: Simon and Schuster.
- Dillman, D.A., Smyth, J.D. & Christian, L.M. (2009) *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Wiley: Hoboken, N.J. 499 pp.
- Degnol, P., & McCay, B. J. 2006. Unintended and perverse consequences of ignoring linkages in fisheries systems. *ICES Journal of Marine Science* 64: 793-797.

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- Edwards C.T.T., Hillary R.M., Levontin P., Blanchard J. & Lorenzen K. (2012) Fisheries assessment and management: a synthesis of common approaches with special reference to deepwater and data-poor stocks. *Reviews in Fisheries Science* 20: 126-153.
- Essington, T.E., Beaudreau, A.H. & Wiedenmann, J. (2006) Fishing through marine food webs. *Proceedings of the National Academy of Science* 103:3171-3175.
- FAO (2020) State of World Fisheries and Aquaculture. Rome, FAO.  
<http://www.fao.org/publications/sofia/2020/en/>
- Fisher, R. and W. Ury. 1991. *Getting to Yes: Negotiating Agreement Without Giving In*. Chapters 1 and 3.
- Fogarty, M.J. & Botsford, L.W. (2007) Population connectivity and spatial management of marine fisheries. *Oceanography* 20: 112-123.
- Francis, R.C., Hixon, M.A., Clarke, M.E., Murawski, S.A. & Ralston, S. (2007) Ten commandments for ecosystem-based fisheries Scientists. *Fisheries* 32: 217-233.
- Fujita, R.M., Honey, K.T., Morris, A., Wilson, J.R. & Russell, H. (2010) Cooperative strategies in fisheries management: integration across scales. *Bulletin of Marine Science* 86: 251-271.
- Garcia, S.M. & Charles, A.T. (2008) Fishery systems and linkages: implications for science and governance. *Ocean and Coastal Management* 51: 505-527.
- Garcia, S. & Rosenberg, A. (2010) Food security and marine capture fisheries: characteristics, trends, drivers and future perspectives. *Philosophical Transactions of the Royal Society B* 365: 2881-2896.
- Grimble, R. & Wellard, K. (1997) Stakeholder methodologies in natural resource management: a review of principles, contexts, experiences and opportunities *Agricultural Systems* 55: 173–193
- Grimes, S.R. (1996) The 1994 net ban constitutional amendment: A case study of fisheries management in Florida. M.S. Thesis, Texas A&M University.
- Gutierrez, N.L., Hilborn, R. & Defeo, O. (2011) Leadership, social capital and incentives promote successful fisheries. *Nature* 470: 386–389.
- Haddon, M. 2001. *Modelling and Quantitative Methods in Fisheries*. Chapman and Hall, London.
- Harris, J.M. et al. (2008) Redressing access inequities and implementing formal management systems for marine and estuarine subsistence fisheries in South Africa. In: *Fisheries Management: Progress Towards Sustainability* (Ed. T.R. McClanahan & J.C. Castilla). Wiley.
- Hilborn, R. (2007a) Defining success in fisheries and conflicts in objectives. *Marine Policy* 31: 153-158.
- Hilborn, R. (2007b) Moving to sustainability by learning from successful fisheries. *Ambio*, 36: 296-303.
- Hilborn, R. & Walters, C. (1992) *Quantitative Fisheries Stock Assessment*. New York: Chapman & Hall.
- Hilborn, R., Orensanz, J.M. & Parma, A.M. (2005) Institutions, incentives and the future of fisheries. *Philosophical Transactions of the Royal Society B*, **360**: 47-57.

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- Hobday et al. (2011) Ecological risk assessment for the effects of fishing. *Fisheries Research* 108: 372–384.
- Hutt, C.P. & Bettoli, P.W (2007) Preferences, Specialization, and Management Attitudes of Trout Anglers Fishing in Tennessee Tailwaters. *North American Journal of Fisheries Management* 27: 1257-1267.
- Jentoft, S. (2006) Beyond fisheries management: The *Phronetic* dimension. *Marine Policy* 30: 671-680.
- Johnston, F.D., Arlinghaus, R. & Diekmann, U. (2013) Fish life history, angler behaviour and optimal management of recreational fisheries. *Fish and Fisheries* 14: 554-579.
- Kaplan, S. & Kaplan, R. (2009) Creating a larger role for environmental psychology: The Reasonable Person Model as an integrative framework. *Journal of Environmental Psychology* 29: 329-339.
- Kuehn, D.M., Dawson, C.P.& Hoffman, R. (2006): Exploring fishing socialization among male and female anglers in New York's Eastern Lake Ontario area. *Human Dimensions of Wildlife: An International Journal* 11: 115-127
- Lorenzen, K. (2008) Understanding and managing enhancement fisheries systems. *Reviews in Fisheries Science* 16:10-23.
- Lorenzen, K., Steneck, R.S., Warner R.R., Parma, A.M., Coleman, F.C. & Leber, K.M. (2010) The spatial dimensions of fisheries: putting it all in place. *Bulletin of Marine Science* 86: 169-177.
- Lorenzen, K. et al. (2016). Stock assessment in inland fisheries: a foundation for sustainable use and conservation. *Reviews in Fish Biology and Fisheries* 26: 405-440.
- McCay, B.J. (1989) Co-management of a clam revitalization project: the New Jersey "spawner sanctuary" project. In: *Co-operative Management of Local Fisheries* (Ed. E. Pinkerton). UBC Press.
- Methot, R. D. (2009). Stock assessment: operational models in support of fisheries management. In *The Future of Fisheries Science in North America* (pp. 137-165). Springer, Dordrecht.
- Milon, W.J., Larkin, S.L. & Erhardt, N.M. (1999) Bioeconomic models of the Florida commercial spiny lobster fishery. Sea Grant Report Number 117, Florida Sea Grant College Program, Gainesville, Florida.
- Monroe, M.C., Oxarat, A., McDonell, L. & Plate, R. (2009) Using community forums to enhance public engagement in environmental issues. *Journal of Education for Sustainable Development* 3: 171-182.
- National Academies of Science, Engineering, and Medicine (NASEM). (2021) *Data and Management Strategies for Recreational Fisheries with Annual Catch Limits*. Washington, D.C.: The National Academies Press.
- NOAA (2007) *Magnuson-Stevens Fishery Conservation and Management Act*. Public Law 94-265.
- Ostrom, E. (2007) A diagnostic approach for going beyond panaceas. *Proceedings of the National Academy of Sciences* 104: 15181-15187.
- Pido, M.D., Pomeroy, R.S. Garces L.R. & Carlos, M.B. (1996) *A Handbook for Rapid Appraisal of Fisheries Management Systems*. Manila, ICLARM.

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- Pomeroy, R.S. & Berkes, F. (1997) Two to tango: the role of government in fisheries co-management. *Marine Policy* 21: 465-480.
- Pomeroy, R.S. & Rivera-Guieb, R. (2006) *Fishery Co-Management: A Practical Handbook*. Wallingford, CABI Publishing.
- Pomeroy, R. et al. 2007. Fish wars: conflict and collaboration in fisheries management in Souteast Asia. *Marine Policy* 31: 645-656.
- Post, J.R. et al. (2002): Canada's recreational fisheries: the invisible collapse? *Fisheries* 27: 6-17
- Prager, M.H. & Shertzer, K.W. (2010) Deriving acceptable biological catch from the overfishing limit: implications for assessment models. *North American Journal of Fisheries Management* 30: 289-294.
- Prince, J. (2010) Rescaling fisheries assessment and management: a generic approach, access rights, change agents, and toolboxes. *Bulletin of Marine Science* 86: 197-220.
- Radomski, P.J., Grant, G.C., Jacobson, P.C. & Cook, M.F. (2001). Visions for recreational fishing regulations. *Fisheries* 26: 7-18.
- Rice, J. (2011) Managing fisheries well: delivering the promises of an ecosystem approach. *Fish and Fisheries* 12, 209-231.
- Salas, S. & Gaertner, D. (2004) The behavioural dynamics of fishers: management implications. *Fish and Fisheries* 5: 153–167
- Sarewitz, D. (2004) How science makes environmental controversies worse. *Environmental Science & Policy* 7: 385-403.
- Schön, D.A. (1983) *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books. 374 pp.
- Shelley, P. (2012) Have the managers finally gotten it right? Federal groundfish management in New England. *HeinOnline - 17 Roger Williams U. L. Rev.* 21.
- Smith L.E.D., Nguyen-Khoa, S. & Lorenzen, K. (2005) Livelihood functions of inland fisheries: policy implications in developing countries. *Water Policy* 7: 359-383.
- Sutinen, J.G. (1999) What works well and why: evidence from fishery-management experiences in OECD countries. *ICES Journal of Marine Science* 56: 1051–1058.
- Sutinen, J.G., & Johnston, R.J. (2003). Angling management organizations: integrating the recreational sector into fishery management. *Marine Policy* 27: 471-487.
- TRCP (2014) *A vision for managing America's saltwater recreational fisheries*. Washington DC: Theodore Roosevelt Conservation Partnership. <http://www.trcp.org/assets/pdf/Visioning-Report-fnl-web.pdf>
- Tierney, J. 2011. Do you suffer from decision fatigue? New York Times article, August 17 2011.
- Turner, D.W. (2010) Qualitative interview design: a practical guide for novice investigators. *The Qualitative Report* 15(3): 754-760. <http://www.nova.edu/ssss/QR/QR15-3/qid.pdf>
- Walters, C.J. (2007) Is adaptive management helping to solve fisheries problems? *Ambio* 36: 304-307
- Weiss, R.S. (1994) *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. Simon & Schuster, New York.
- Welcomme, R.L., Cowx, I.G. Coates, D. Béné, C., Funge-Smith, S., Halls, A.S. & Lorenzen, K. (2010) Inland capture fisheries. *Philosophical Transactions of the Royal Society B* 365:

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2881-2896.

Whitmarsh, D. (2011) *Economic Management of Marine Resources*. London: Earthscan.

Wondolleck, J.M. & Yaffee, S.L. (2000) Making Collaboration Work: Lessons from Innovation in Natural Resource Management. Island Press. (Summary article in: Conservation in Practice 1: 17-24).

Worm, B. et al. (2009) Rebuilding global fisheries. *Science* 325: 578-585.

Young, E., & Quinn, L. (2002) Writing Effective Public Policy Papers: Guide for Policy Advisers in Central and Eastern Europe. Local Government and Public Service Reform Initiative.

## **Policies and Requirements**

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

### Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

### Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. Respect for individual differences and alternative viewpoints will be maintained in this class at all times. All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

### Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

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At approximately the mid-point of the semester, the School of Forest, Fisheries, & Geomatics Sciences will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

### Inclusive Learning Environment

This course embraces the University of Florida’s Non-Discrimination Policy, which reads, The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race,



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creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

### Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### Campus Helping Resources

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFFGS Academic Hub <https://ufl.instructure.com/courses/303721>

### Student Life, Wellness, and Counseling Help

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Connections Center <http://career.ufl.edu/>

[Type here]

- Other resources are available at <http://www.distance.ufl.edu/getting-help> for online students.

### Student Complaint Process

The School of Forest, Fisheries, & Geomatics Sciences cares about your experience and we will make every effort to address course concerns. We request that our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered. You can also submit feedback anytime at <https://ffgs.ifas.ufl.edu/contact/>.

If you have a more urgent concern, your first point of contact should be the Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: <http://www.distance.ufl.edu/student-complaint-process>
- Students in face-to-face courses: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

# Marine Protected Areas- FAS4932/6357

## 1. Overview

Lectures will address the logic of marine protected areas (MPAs) and their advantages and disadvantages. The science of MPAs will be presented as well an overview of traditional approaches of fisheries management. The importance of ecological principles when creating an MPA will be emphasized. An overview of sampling theory and the need for empirical data to document the success or failure of MPAs will be presented.

- 3 credits
- Fall Semester
- 100% Online
- <http://elearning.ufl.edu/>

**Instructor:** Dr. Nick Funicelli

- Please use the Canvas message/Inbox feature for fastest response.
- Office hours: Monday, Wednesday Friday one to three. I am also available by appointment email or call me to arrange: [jungian7@gmail.com](mailto:jungian7@gmail.com) | CELLS: 352.328.4583 ; 352-872-8998 PLEASE NOTE LEAVE MESSAGES AT ANY NUMBER
- Can also arrange a Skype

**Teaching Assistant:** Shelby C Thomas

- Please use the Canvas message/Inbox feature for fastest response.

**Textbook(s) and/or readings:** There is no required text for the course. Online readings will be provided for many learning topics.

## 2. Learning Outcomes

At the end of this course, each student will be able to:

- Understand the advantages and disadvantages of MPAs as a fisheries and conservation management tool
- How to test a hypothesis relative to the success or failure of the creation and monitoring of an MPA
- Comprehend the vested interest of various stakeholders and user groups relative to the creation of an MPA

## 3. Course Logistics

This course is entirely web-based and students may access lectures, readings, and supporting materials as they become available each week.

### Technology Requirements:

- A computer or mobile device with high-speed internet connection.
- A headset and/or microphone and speakers; a web cam is suggested.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser. [What browser am I using?](#)
- [Voicethread: <http://ufl.voicethread.com> (more instructions will be provided)]

### 3.1. Assignments & Deliverables

#### Graduate Students:

**All students will introduce themselves via a voice thread 100 points**

#### **Discussions. 1400 points**

- There are 14 discussions. Please remember that unless you post to the Discussion board, the instructor cannot know that you are completing and understanding the course material. Each week a general question will be posted to get a discussion going, but comments and or answers need not be limited to that general topic. **Please feel free to post your own discussion topics** based on the unit focus and readings each week. These discussions can, and should, be just like a good in-class discussion. They are a way for you to test out your ideas related to the material and enhance your knowledge from the perspectives and experiences of your colleagues in the course. Please remember our discussions are a safe place and we can disagree but always be polite and courteous.
- Your post can be audio, video or written. I hope to use all three types of media and encourage you to do the same.
- Until you post you will not have access to other posts in the discussion.

Each discussion will begin on at 12:01 AM Monday morning and your first response is due by Wednesday of each of the 14 weeks.

**Species Profile paper for Graduates 3 for 300 points each with a total of 900 points**

**Critique Three (3) Peer-Reviewed Articles 100 points each with a total of 300 points**

- Choose a peer reviewed journal article, related to Marine Protected Areas. This assignment is to critically review an article. Your critique should include discussing the author's findings, reviewing their materials and methods, analyzing their experimental design. You should

determine any shortcomings of their experiment as well as the overall contributions their findings make to understand MPA's.

### **Final Project – 1600 points**

**Outline for Final Power Point Presentation. 400 points** - Students will submit a 1-2 page (double spaced) outline of your final presentation. Your outline must be approved prior to your final power point presentation.

- **PLEASE REMEMBER BOTH OUR TA AND ME ARE AVAILABLE FOR A ZOOM DISCUSSION RELATIVE TO THIS ASSIGNMENT.**
- I encourage you to take advantage of this opportunity.
  
- **1200 points for Power Point Presentation**
- Each student will give a short Power Point Presentation to the class (less than 15 minutes). This presentation will be the creation of a Marine Protected Area. This creation could be real or imagined.
- The goal(s) of the MPA.
- The hypothesis and science of why the MPA will (should) be successful.
- The presentation should illustrate the size, shape and habitats of the proposed MPA.
- It should include the rationale for what is NOT allowed in the MPA.
- It should itemize possible stakeholders and what vested interest they each have in the proposed MPA.
- A monitoring program to document the success or failure of the MPA.
- An adaptive management plan relative to possible outcomes of the monitoring program.

### **Final Power Point Presentation 1200 Points**

**If you anticipate problems with making your submissions on time, contact me in advance. Late work will be penalized**

## **Undergraduate Students:**

**All students will introduce themselves via a voice thread 100 points**

Discussions. 1400 points

- There are 14 discussions. Please remember that unless you post to the Discussion board, the instructor cannot know that you are completing and understanding the course material. Each week a general question will be posted to get a discussion going, but comments and or answers need not be limited to that general topic. Please feel free to post your own discussion topics based on the unit focus and readings each week. These discussions can, and should, be just like a good in-class discussion. They are a way for you to test out your ideas related to the material, and enhance your knowledge from the perspectives and experiences of your colleagues in the course.
- Your post can be audio, video or written. I hope to use all three types of media and encourage you to do the same.
- Until you post you will not have access to other posts in the discussion.
- Each discussion will begin on at 12:01 AM Monday morning and your first response is due by Wednesday of each of the 14 weeks.

**Species Profile paper 1 for undergraduates - 300 points**

**Critique one (1) Peer-Reviewed Article - 100 points**

- Choose a peer reviewed journal article, related to Marine Protected Areas. This assignment is to critically review an article. Your critique should include discussing the author's findings, reviewing their materials and methods and analyzing their experimental design. You should determine any shortcomings of their experiment as well as the overall contributions their findings make to understand MPAs.

**Final Project – 1600 points**

**Outline for Final Power Point Presentation. 400 points** - Students will submit a 1 -2 page (double spaced) outline of your final presentation. Your outline must be approved prior to your final power point presentation.

- **PLEASE REMEMBER BOTH OUR TA AND ME ARE AVAILABLE FOR A SKYPE DISCUSSION RELATIVE TO THIS ASSIGNMENT.**
- I encourage you to take advantage of this opportunity.
- **1200 points for Power Point Presentation**
- Each student will give a short Power Point Presentation to the class (less than 15 minutes). This presentation will be the creation of a Marine Protected Area. This creation could be real or imagined.
- The goal(s) of the MPA.

- The hypothesis and science of why the MPA will (should) be successful.
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- A monitoring program to document the success or failure of the MPA.
- An adaptive management plan relative to possible outcomes of the monitoring program.

#### **Final Power Point Presentation 1200 Points**

**If you anticipate problems with making your submissions on time, contact me in advance. Late work will be penalized**

## **4. Grades & Grading Scale**

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

## **5. Course Content**

- See “Modules” in Canvas.

#### **Grading Scale (%)**

A 93-100  
A- 90-92  
B+ 88-89  
B 83-87  
B- 80-82  
C+ 77-79  
C 73-76  
C- 70-72  
D+ 67-69  
D 63-66  
D- 60-62  
E > 60

## **6. Policies and Requirements**

This syllabus represents current plans and objectives for this course. As the semester progresses, changes may need to be made to accommodate timing, logistics, or to enhance learning. Such changes, communicated clearly, are not unusual and should be expected.

### **6.1. Late Submissions & Make-up Requests**

It is the responsibility of the student to access on-line lectures, readings, discussions, etc. and to maintain satisfactory progress in the course.

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues **MUST** be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket



number will document the time and date of the problem. You **MUST** e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

**For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).**

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## 6.2. Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

**At approximately the mid-point of the semester**, the School of Forest Resources & Conservation will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required, but encouraged. This is not the UF Faculty Evaluation!

**At the end of the semester**, students are expected to provide UF with feedback on the quality of instruction in this course using a standard set of university and college criteria (UF Faculty Evaluations). These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

## 6.3. Netiquette: Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. Failure to do so may result in loss of participation points and/or referral to the Dean of Students' Office. <http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>

## 6.4. Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:

<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

## **6.5. University Policy on Accommodating Students with Disabilities:**

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams.

Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

## **6.6. Software Use**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

# **7. Getting Help**

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu) | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFRC Academic Hub <https://ufl.instructure.com/courses/303721>

## **7.1. Student Life, Wellness, and Counseling Help**

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Resource Center <http://www.crc.ufl.edu/>
- Other resources are available at <http://www.distance.ufl.edu/getting-help> for online students.

## **7.2. Student Complaint Process**

The School of Forest Resources & Conservation cares about your experience and we will make every effort to address course concerns. We request that all of our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered.

If you have a more urgent concern, your first point of contact should be the SFRC Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: <http://www.distance.ufl.edu/student-complaint-process>

- Students in face-to-face courses:  
[https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

# FAS 6705 Fisheries and aquaculture: An economics perspective

## 1 Course Overview

### Short description:

This course introduces students to important issues in fisheries and aquaculture management from an economic perspective, exploring the incentives of various stakeholders in utilizing and conserving fisheries resources, as well as the impacts and effects of differing management systems on industry and ecosystems. Appropriate for students with little or no background in economics or fisheries sciences.

## 2 Overview

In many ways the oceans and our waterways are the last frontier. Fisheries are the last major hunting industry, and fishing is also an important recreational activity. During recent decades, global aquaculture production has exploded and has now surpassed fisheries as a source for food, primarily due to new technologies and knowledge that create new opportunities. At the same time, these evolving industries create new pressures on the ecosystem.

To a large extent, the use of the ocean and water resources is about exploiting economic opportunities, given the constraints provided by the natural resources in the system. Since these opportunities involve the use of public natural resources, it is not surprising that there are a number of conflicts between different user groups such as aquaculture producers, commercial fishers, conservationists, consumers, environmentalists, fisheries managers and recreational fishers.

Lectures and discussions are used to introduce students to key concepts and methods, and follow-up discussions will be provided in class. Please note that there will not be a class every week. The class dates can be found in Section 5. Prepared questions are encouraged for class participation.

- 3 Credits
- Fall 2022
- Pre-recorded lectures with face-to-face class meetings (synchronous virtual participation available). Class meetings will be Tuesdays at 4.05pm at NZH 222 at the scheduled dates.
- Canvas site is available at <http://ufl.instructure.com> or <http://elearning.ufl.edu>

**Course Prerequisites:** None

**Instructor:** Dr. Frank Asche (Professor), G099 at McCarty B, email: [frank.asche@ufl.edu](mailto:frank.asche@ufl.edu)

- Office hours: Tuesdays, 2-4. Additionally available by email or phone by appointment.

**Textbook(s) and/or readings:** There is no required text for the course. Selected readings from primary literature are included in Reading List below.

### 3 Learning Outcomes

At the end of this course, each student will be able to:

- Describe economic opportunities in the production, use and conservation of seafood resources.
- Describe ways fishers and aquaculturists may create environmental externalities that lead to exploitation of the ecosystem.
- Describe methods by which management systems can protect natural resources.
- Analyze the impacts of management systems design relative to various stakeholder interests.
- Analyze the economic and market effects of various management systems.
- Evaluate costs and benefits associated with various uses of fisheries and coastal resources.
- Evaluate the impact of international trade on fisheries and coastal resources.

### 4 Course Logistics

Students may access lectures, assignments, readings, and supporting materials through the course Canvas site as they become available.

#### **Technology Requirements:**

- A computer or mobile device with high-speed internet connection.
- A webcam, headset and/or microphone, and speakers.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser. [What browser am I using?](#)
- Installation of proctoring software may be required and will be provided if so.

**Synchronous online sessions may be recorded.** By sharing your video, screen, or audio during any synchronous online class sessions, you are consenting to being recorded for the benefit of students who cannot attend live as well as for class review during the current semester. If you have special circumstances or concerns about privacy, it is your responsibility to discuss it with your instructor.

#### 4.1 Description of Assessments & Activities

##### **Reading Reflections.**

Throughout the semester, you will be expected to complete four (4) of six (6) possible reflection papers on assigned readings. These reflections should be 1-2 pages in length and should provide evidence of critical thinking about the literature, including questions you have, unaddressed issues in the science or policy, etc. Citation is required, and additional references to the required readings are encouraged but not required.

- Each reflection is worth 11.25% of the total grade for a total of 45%.

### Reflection topics

1. Why is so much seafood traded? Discuss the importance of demand as well as supply factors:

Due date: September 9, 2022

2. Fisheries management: Is an outcome that is environmentally, economically and socially sustainable possible?

Due date: September 30, 2022

3. Recreational fisheries: Are they different?

Due date: October 14, 2022

4. Aquaculture: Good, bad or a mix depending on technologies, markets, etc.?

Due date: November 4, 2022

5. Is there any reason to believe the sustainable seafood movement makes any difference? If so, how?

Due date: November 25, 2022

6. Discuss one topic based on the lecture series.

Due date: December 2, 2022

### Case Study Project/Writing Assignment.

A significant portion of the grade is a paper where the student chose a case to analyze based on the materials provided in the course. This paper will be split into two (2) submissions:

- Initial topic and case study site selection (participation grade), Due date: September 20, 2021
- Final paper (50%), including at least the following sections:
  - Introduction
  - Background
  - Analysis
  - Recommendations
  - References

The final submission should be between 10-15 pages not including references. Use correct *Marine Resource Economics* journal style for citations and writing. See rubric in Canvas Assignments for more details.

Due date: December 12, 2022

### Participation.

Attendance at all course meetings (virtual or face-to-face) is expected.

## 4.2 Grades & Grading Scale

10% Attendance, initial topic submission, and participation in discussions

40% Reflection papers (4 required out of 6 possible, 10% each)

50% Case study: Final submission of complete case study

Grades will be allocated as: A (93-100%), A- (90-92%), B+ (88-89%), B (81-87%), B- (78-80%), C+ (74-77%), C (67-73%), C- (63-66%), D+ (59-62%), D (55%-58%), D- (51-54%), E (<50%). Rounding to the nearest whole.

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

## 5 Learning Content

Week	Topics
1	<ul style="list-style-type: none"><li>• Introduction</li><li>• Important challenges for utilization and conservation of seafood</li><li>• Background on some of the conflicts</li><li>• The economic incentives: Opportunities and challenges</li><li>• Lecture available: August 26; Class: August 30.</li></ul>
2	<ul style="list-style-type: none"><li>• Overview of global and U.S. seafood production and consumption including aquaculture and fisheries as production technologies</li><li>• Overview of global seafood production</li><li>• Why trade?</li><li>• Livelihoods and communities</li><li>• Lecture available: August 26; Class: August 30.</li></ul>
3	<ul style="list-style-type: none"><li>• The tragedy of the commons, causes and consequences</li><li>• The benefits of regulating fisheries in the environmental and economic dimensions</li><li>• Lecture available: September 2; Class: September 6.</li></ul>
4	<ul style="list-style-type: none"><li>• Fisheries regulations and incentives</li><li>• Command and control</li><li>• The race to fish</li><li>• Overcapacity and subsidies</li><li>• Lecture available: September 9; Class: September 13.</li></ul>
5	<ul style="list-style-type: none"><li>• Fisheries regulations and incentives</li><li>• Individual Fishing Quotas</li><li>• Quota Transferability</li><li>• Lecture available: September 9; Class: September 13.</li></ul>
6	Reading reflections
7	<ul style="list-style-type: none"><li>• Recreational fishing</li><li>• Conservation and hatcheries</li><li>• Competition between recreational and commercial fishers</li><li>• Lecture available: September 30; Class: October 4.</li></ul>
8	<ul style="list-style-type: none"><li>• Aquaculture: Farming not hunting</li></ul>



	<ul style="list-style-type: none"> <li>• Why do aquaculture production grow so rapidly?</li> <li>• Lecture available: October 7; Class: October 11.</li> </ul>
9	<ul style="list-style-type: none"> <li>• Aquaculture: Environmental issues, regulation and livelihoods</li> <li>• Why is not much farmed fish being produced in the U.S.?</li> <li>• Lecture available: October 14; Class: October 25.</li> </ul>
10	<ul style="list-style-type: none"> <li>• Markets</li> <li>• Lecture available: October 21; Class: November 1.</li> </ul>
11	<ul style="list-style-type: none"> <li>• Supply chains</li> <li>• Lecture available: October 28; Class: November 1.</li> </ul>
12	<ul style="list-style-type: none"> <li>• Seafood trade</li> <li>• Lecture available: November 4; Class: November 15.</li> </ul>
13	<ul style="list-style-type: none"> <li>• The sustainable seafood movement</li> <li>• Eco-labeling</li> <li>• Lecture available: November 11; Class: November 22.</li> </ul>
14	<ul style="list-style-type: none"> <li>• Illegal, unreported and unregulated (IUU) fishing</li> <li>• High-seas stocks: Exploitation and management</li> <li>• Lecture available: November 11; Class: November 22.</li> </ul>
15-16	Work on final paper

## 6

### 6.1 Readings

#### Lecture 1.

Asche, F. and M.D. Smith (2018) Induced Innovation in Fisheries and Aquaculture. *Food Policy*. 76(April), 1-7.

Love, D.C., F. Asche, Z. Conrad, R. Young, J. Harding, R. Neff (2020) Food Sources and Expenditures for Seafood in the United States. *Nutrients*, 12(6), 1810.

Love, D.C., F. Asche, R. Young, E.M. Nussbaumer, J.L. Anderson, R. Botta, Z. Conrad, H.E. Froehlich, T.M. Garlock, J.A. Gephart, A. Ropicki, J.S. Stoll, A.L. Thorne-Lyman (2022) An Overview of Retail Sales of Seafood in the United States, 2017-2019. *Reviews in Fisheries Science and Aquaculture*. 30(2), 259-270.

#### Lecture 2.

Asche, F. C. A. Roheim and M.D. Smith (2014) Markets, Trade, and Seafood. In *Encyclopedia of Natural Resources* (ed Y. Wang). CRC Press, pp. 791-797.

Knapp. G. (2017) A fishy introduction to Economics. Unpublished manuscript.

Filipski, M., and B. Belton (2018) Give a Man a Fishpond: Modeling the Impacts of Aquaculture in the Rural Economy. *World Development* 110, 205-223.

Lectures 3-5.

Hardin, G. 1968. The Tragedy of the Commons. *Science* 162:1243-47.

Ostrom, E. 1999. Coping with tragedies of the commons. *Ann. Rev. Polit. Sci.* 2: 493–535.

Wilén, J. E. (2006) “Why Fisheries Management Fails: Treating Symptoms Rather than Causes”, *Bulletin of Marine Science*, 78: 529-546.

Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) *The Routledge Handbook of Agricultural Economics*. Routledge, NY, pp. 134-159.

Lecture 7.

Fenichel, E., J. K. Abbott and B. Huang (2013) Modelling angler behaviour as a part of the management system: synthesizing a multi-disciplinary literature *Fish and Fisheries*, 14, 137-157.

Arnasson, R (2012), *Managing Commercial and Recreational Fisheries: Issues and challenges*

Lectures 8-9.

Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) *The Routledge Handbook of Agricultural Economics*. Routledge, NY, pp. 134-159.

Asche, F. (2008) Farming the Sea. *Marine Resource Economics*, 23(4), 527-547.

Garlock, T., F. Asche, J.L. Anderson, T. Bjørndal, G. Kumar, K. Lorenzen, A. Ropicki, M. D. Smith and R. Tveterås (2020) A Global Blue Revolution: Aquaculture Growth across Regions, Species, and Countries. *Reviews in Fisheries Science and Aquaculture*. 28(1), 107-116.

Knapp, G., & Rubino, M. C. (2016). The political economics of marine aquaculture in the United States. *Reviews in Fisheries Science and Aquaculture*, 24(3), 213–229.

Kobayashi, M., Msangi, S., Batka, M., Vannuccini, S., Dey, M. M., & Anderson, J. L. (2015). Fish to 2030: The role and opportunity for aquaculture. *Aquaculture Economics & Management*, 193, 282-300.

Naylor, R.L., R.J. Goldburg, J. Primavera, N. Kautsky, M. Beveridge, J. Clay, C. Folke, and J. Lubchenco (2000). Effects of aquaculture on world fish supplies. *Nature* 405(29): 1017–1024.

Tveterås, S. (2002). Norwegian salmon aquaculture and sustainability: The relationship between environmental quality and industry growth. *Marine Resource Economics* 17(1): 121–132.

Lectures 10-12.

Anderson, J.L. (2002). Aquaculture and the future. *Marine Resource Economics* 17(2): 133–152.

Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) *The Routledge Handbook of Agricultural Economics*. Routledge, NY, pp. 134-159.

Lecture 13-14.

Fonner, R., & Sylvia, G. (2015). Willingness to Pay for Multiple Seafood Labels in a Niche Market. *Marine Resource Economics*, Vol. 30, 51-70.

Roheim, C. A. An Evaluation of Sustainable Seafood Guides: Implications for Environmental Groups and the Seafood Industry. *Marine Resource Economics* 24, 301-310 (2009).

Tlusty, M. F. Environmental improvement of seafood through certification and ecolabelling: theory and analysis. *Fish and Fisheries* 13, 1-13

## 7 Policies and Requirements

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

### 7.1 Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

### 7.2 Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view.

**Respect for individual differences and alternative viewpoints will be maintained in this class at all times.** All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

### 7.3 Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

**At approximately the mid-point of the semester**, the School of Forest Resources & Conservation will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

**At the end of the semester**, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### 7.4 Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:

<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

### 7.5 Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

*The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.*

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

## **7.6 Services for Students with Disabilities:**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

## **7.7 Software Use**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

# **8 Campus Helping Resources**

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu) | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFRC Academic Hub <https://ufl.instructure.com/courses/303721>

## **8.1 Student Life, Wellness, and Counseling Help**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Connections Center <http://career.ufl.edu/>
- Other resources are available at <http://www.distance.ufl.edu/getting-help> for online students.

## **8.2 Student Complaint Process**

The School of Forest Resources & Conservation cares about your experience and we will make every effort to address course concerns. We request that all of our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered.

If you have a more urgent concern, your first point of contact should be the SFRC Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: <http://www.distance.ufl.edu/student-complaint-process>
- Students in face-to-face courses: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>