

## NRES 409 Fisheries Ecology and Conservation

- August 2016
- Hours: 4 ug/g
- Lecture: Monday, Wednesday & Friday from 11:00 am to 11:50 am (W13 Turner Hall)
- Discussion period: Wednesday from 12:00 pm (noon) to 12:50 pm (W13 Turner Hall)
- Course content (handouts, assignments, etc.) will be managed through Compass 2g (<https://compass2g.illinois.edu/webapps/login/>)

### Instructor Information

- Instructor: Dr. Cory Suski, Associate Professor, NRES
- Office: W401C Turner Hall
- Phone: 217-244-2237
- Email: [suski@illinois.edu](mailto:suski@illinois.edu)
- Office Hours: Wednesday 1:00-1:50 (or by appointment)
- Preferred Method of Contact: Email

### Course Description & Overview

This course will provide an overview to the structure and functioning of freshwater and marine aquatic ecosystems, and acquaint students with the basic biology and field techniques required to successfully manage fish populations. In addition, this course will expose students to a number of challenges facing aquatic ecosystems, and will provide an opportunity to discuss activities, approaches and strategies that can be used to solve these challenges. While many examples and scenarios discussed will be based on local/regional issues, the course will emphasize a global perspective to aquatic conservation issues and how regional differences in problems and solutions exist. Emphasis will be placed on the importance of using sound science to generate successful management strategies.

### Course Information

- Prerequisites: NRES 348
- Required Text: [\*Ecology and Conservation of Fishes\*](#)
  - Author: Harold M. Tyus (ISBN: 978-1-4398-5854-7).
  - On reserve in the ACES library. Call Number [597 T994e](#)
- Supplemental material on 2-hour reserve in the ACES library:
  - *Fish conservation: a guide to understanding and restoring global aquatic biodiversity and fishery resources* (Helfman). Call Number [333.95611 H367f](#)
  - *Fisheries Techniques, 3<sup>rd</sup> edition* (Zale et al.). Call number [639.20202 F5392012](#)
  - *Fisheries techniques, 2<sup>nd</sup> edition* (Murphy and Willis). Call number [639.2028 F5391996](#)
  - *Methods for fish biology* (Schreck and Moyle). Call number [597.0072 M566](#)
  - *Inland Fisheries Management in North America, 3<sup>rd</sup> Edition* (Hubert & Quist). Call number [639.21097 In5 2010](#)

### Learning Objectives

At the conclusion of the course, students will acquire knowledge of (1) the primary biological/environmental forces responsible for the health and functioning of fisheries populations, (2) the ways in which human activities can both help and harm fish populations, and (3) the processes and steps required to solve applied fisheries management problems. This knowledge will be obtained

through a combination of lectures, self-directed learning, case studies, group learning and exposure to a range of 'real-life' conservation scenarios. To accomplish these goals, students will:

- Generate a synthesis paper that incorporates a range of
- Instruct their peers on a topic of applied fisheries techniques
- Participate in a debate/role-playing exercise involving a 'real world' fisheries conservation scenario

### **Expectations of Students**

During this course, it is expected that students will come to class on time, having completed assigned reading in advance, and be prepared to engage in course content for the full class time. Students are expected to participate in class activities in ways that support course learning objectives, demonstrate respect and civility toward all other students and instructors, and take an active role in obtaining information and resources for completion of tasks and assignments in the course, ultimately promoting their own learning. Wherever possible, students should contribute feedback to support the instructor in achieving course goals and inform the instructor if they are having a problem understanding presented material. Students are also expected to complete assigned tasks by the announced deadlines and adhere to the content of this syllabus. Finally, students should refrain from using cell phones in class.

### **Students' Expectations of Instructor**

During this course, the instructor is expected to begin and end class on time, make the best possible use of class time to support student learning, answer questions promptly and sufficiently, and be available to provide additional assistance when needed. The instructor will always provide clear and consistent criteria that can be used fairly in evaluating student learning, will welcome input on ways to improve the course and will support the achievement of course learning objectives. Feedback (in the form of grading of papers and exams) should be provided to students in a prompt, timely fashion and lecture notes will be made available on the class website prior to class.

### **Teaching and Learning Strategies**

- Learning of concepts and techniques in this course will occur through five different means:
  - *Lectures*: the primary way that students will be exposed to new concepts and ideas is through lectures by the instructor. Lectures will be based on the required course text book, as well as additional supplementary literature provided via the class webpage or course reserves. Where possible, effort will be made to share the source of any primary literature incorporated into lectures.
  - *Discussion periods*: Weekly discussion periods will provide students to interact with each other and share detailed information about applied topics in fisheries science. Students will be responsible for organizing and leading a half-hour discussion period on a topic of their choosing. Additional details will be provided in class. Additional discussion periods may be devoted to the facilitated discussion of a current article from primary fisheries literature.
  - *Group exercise*: At the end of the semester there will be a 1.5-hour role-playing exercise on a current topic or case study in fisheries science. Students will be divided into different stakeholder groups, and the different groups will discuss the topic at hand from different perspectives. This activity will allow students to both apply course content, and experience a 'real world' problem from a stakeholder point of view. Additional details will be provided in class.

- *Written assignments*: Students will be required to complete 2 (two) essay assignments on a topic of their choice. The purpose of these assignments is to incorporate a broad range of concepts and ideas (fish biology, environmental constraints, activities of humans etc.) to address a current topic in fisheries science.
- *Case studies*: For several concepts and ideas, students will be presented with data sets, hypothetical examples or small role-playing activities to help reinforce class materials. Students will work through these case studies in small groups.
- *Exams*: There will be three exams for this course – two mid-semester exams and a final exam. All exams will be cumulative, so students will be required to know all earlier material for each exam. Exams and assignments will be based on a comprehensive understanding and integration of multiple concepts and ideas – not the memorization of facts and figures. Exams will serve to provide students with a means to identify topics and skills they have not yet mastered, and to motivate students to engage course material.

### **Tentative Lecture Topics and Schedule**

*Note that the dates for lecture topics are subject to change, but the dates of exams, due dates for papers and other 'important dates' will not vary.*

Date	Day	Lecture or Discussion	Title	Text Chapters	
Aug 22	M	Lecture	Introduction		
Aug 24	W	Lecture	Fisheries & management	Tyus, Ch. 1	
Aug 24	W	Discussion	Prepare for group exercise		
Aug 26	F	Lecture	Fish	Tyus, Ch. 2,20	
Aug 29	M	Lecture	Time for group exercise		
Aug 31	W	Lecture	Prepare for presentations & discuss assignments		
Aug 31	W	Discussion	Prepare for presentations & discuss assignments		
Sept 2	F	Lecture	Water & living in water	Tyus, Ch. 3	
Sept 5	M	<b>Labor Day – No Class</b>			
Sept 7	W	Lecture	Aquatic ecosystem components	Tyus, Ch. 9	
Sept 7	W	Discussion	Paper discussion – Discussion_3 on Compass	<a href="#">Discussion_3</a>	
Sept 9	F	Lecture	Aquatic ecosystem structure	Tyus, Ch. 22	
Sept 24	M	Lecture	Bioenergetics	Tyus, Ch. 21	
Sept 14	W	Lecture	Foraging and Feeding	Tyus, Ch. 25	
Sept 14	W	Discussion	(1) Aquaculture		
Sept 16	F	Lecture	Growth & ageing 1 of 2	Tyus, Ch. 23	
Sept 19	M	Lecture	Growth & ageing 2 of 2	Tyus, Ch. 23	
Sept 21	W	Lecture	Competition and Patch Use	Tyus, Ch. 25	
Sept 21	W	Discussion	(1) Creels and surveys; (2) Tagging and Marking		
Sept 23	F	Case study & group discussion (Found under 'Case Studies' file on Compass)		Case 8 - Pike	
Sept 26	M	Lecture	Life history strategies and reproduction	Tyus, Ch. 26	
Sept 28	W	<b>Exam # 1 (Paper # 1 Due)</b>			
Sept 30	F	Lecture	Recruitment & population dynamics 1 of 2	Tyus, Ch. 26,28	
Oct 3	M	Lecture	Recruitment & population dynamics 2 of 2	Tyus, Ch. 26, 28	
Oct 5	W	Lecture	Ecosystem Management	Hubert & Quist 13	

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Oct 5	W	Discussion	(1)Hydroacoustics; (2) Fish handling	
Oct 7	F	Lecture	Angler Motivations	
Oct 10	M	Lecture	Management & regulations 1 of 2	Kohler&Hubert Ch.2&5
Oct 12	W	Case study & group discussion (Found under 'Case Studies' file on Compass)		"Structural Indices"
Oct 12	W	Discussion	(1)Nuisance macrophytes; (2)Commercial fisheries	
Oct 14	F	Lecture	Management & regulations 2 of 2	Kohler&Hubert Ch.2&5
Oct 17	M	Lecture	Stunting	Links <a href="#">1</a> and <a href="#">2</a>
Oct 19	W	Lecture	Management of rivers & streams 1 of 2	Hubert & Quist 18-21
Oct 19	W	Discussion	(1)Biotelemetry; (2) Planning for sampling	
Oct 21	F	Lecture	Management of rivers & streams 2 of 2	Hubert & Quist 18-21
Oct 24	M	Lecture	Habitat & manipulations 1 of 2	Kohler&HubertCh.9-12
Oct 26	W	Lecture	Habitat & manipulations 2 of 2	Kohler&HubertCh.9-12
Oct 26	W	Discussion	(1)Electroshocking; (2) Diet analyses	
Oct 28	F	Lecture	Mgmt of reservoirs, lakes & impoundments	Hubert&Quist 15, 16, 17
Oct 31	M	Case study & group discussion		Case_22 – Slot length
Nov 2	W	<b>Exam # 2 (group exercise citations due)</b>		
Nov 4	F	Lecture	Stocking & hatcheries	Kohler & Hubert Ch.14
Nov 7	M	Lecture	Marine Fisheries	
Nov 9	W	Lecture	Invasive and threatened species	Helfman Chapter 4
Nov 9	W	Discussion	(1)Field safety; (2) Genetic tools	
Nov 11	F	Lecture	Dams and barriers	Helfman Chapter 6
Nov 14	M	Lecture	Aquaculture	Helfman Chapter 14
Nov 16	W	Lecture	Protected areas	
Nov 16	W	Discussion	(1)Macroinvertebrates; (2) Otoliths	
Nov 18	F	Lecture	Time for Group Exercise	
Nov 21	M	Thanksgiving Break – No Class		
Nov 23	W			
Nov 23	W			
Nov 25	F			
Nov 28	M	Lecture	(1)Toxicants; (2) Capture techniques	
Nov 30	W	<b>Group Exercise</b>		
Dec 2	F	Lecture	Climate change	
Dec 5	M	(1)Determination of health and well-being; (2) Human dimensions of recreational fisheries		
Dec 7	W	Case study & group discussion; Presentation self-assessment due; group exercise peer & self-evaluation due; final paper due; review session		"4 Tables"
<b>Dec 12</b>		<b>FINAL: 7:00 pm</b>		

As of August 21, 2016, the final exam is scheduled to be held on **Monday December 12<sup>th</sup> at 7:00 pm in W13 Turner Hall**. The course-specific exam schedule will be posted in mid-October and will include exam location. Students are asked to regularly check <http://registrar.illinois.edu/fall2016schedulingguidelinespublic> to ensure this exam date has not been changed by the University.

**Evaluation Methods & Weighting**

Component	Proportion of Final Grade
Exam # 1	5 %
Exam # 2	10 %
Presentation	10 %
Discussion Sessions & Group Exercise	10 %
Paper # 1	5 %
Final Paper	25 %
Final Exam	35 %
Total	100 %

Grading rubrics for the papers and assignments will be available on Compass at the beginning of the class. The content of the exams will be cumulative – the final exam will cover all material for the entire year.

**Course Policies**

- Student grades will be based on the above course components ONLY. Extra-curricular activities (work, sports, applying for jobs), special requirements (you have to get an A to graduate, need a certain grade to maintain a scholarship, need to maintain certain GPA to graduate, etc.) or requirements of future career plans (graduate or professional schools) will not influence ANY grade in this course.
- Your grade will be based, without exception, on the following scale:

A +	97 to 100%
A	93 to 96.9%
A -	90 to 92.9%
B +	87 to 89.9%
B	83 to 86.9%
B -	80 to 82.9%
C +	77 to 79.9%
C	73 to 76.9%
C -	70 to 72.9%
D +	67 to 69.9%
D	63 to 66.9%
D -	60 to 62.9%
F	< 59.9%

- Attending class is expected, but will not be monitored. Should students need to miss a class, they are encouraged to (1) complete readings of supplementary materials provided in the syllabus or within the lecture notes, and/or (2) borrow class notes from a classmate to become familiar with

material discussed in class. Following the completion of these two steps, students are encouraged to discuss materials with the instructor (particularly during office hours) if uncertainty exists regarding content. Note that notes provided by the instructor are meant to *supplement* classroom activities, and not replace learning and discussion during lectures.

- Lecture notes and copies of lecture slides will be provided on Compass as PDF handouts. Copies of individual PowerPoint slides, or handouts consisting of individual PowerPoint slides of lecture material, will **not** be made available to students.
- Should you notice early in the semester that you have a conflict with an exam (i.e., field trip, other), please inform the instructor as early as possible. In situations of known (anticipated) exam conflicts, options related to grades will be handled on a case-by-case basis. Options may include changing the timing of the exam (i.e., write the exam early), or altering the weighting of other assignments in the class. It is expected that known conflicts be supported with a note from another professor (or similar) in support of the conflict.
- Plan to arrive early for all exams in this course. It is the student's responsibility to be sure that the day of the exam will not conflict with other activities. If you arrive to an exam more than 30 minutes late, or after the first person completes the exam (whichever comes first), you will not be allowed to take the exam and will receive a score of 0 (zero). Excuses that are within a student's control (e.g., not enough time to study, semester has been busy, car wouldn't start, job interview, alarm clock did not work, did not wake up early, traffic was terrible, bus was late, etc.) will not be accepted. It is the student's responsibility to anticipate and avoid these potential issues.
- The policy for missed exams will follow guidelines provided by the Dean of Students and the Student Assistance Center at [http://www.odos.illinois.edu/studentAssistance/absence/revised\\_code.asp](http://www.odos.illinois.edu/studentAssistance/absence/revised_code.asp). Briefly, excused absences from exams will be granted **only** for reasons outlined on the Dean of Students website (illness of 3 days or longer, illness of family member etc.), **and** only upon timely receipt of an absence letter from the [Student Assistance Center \(Dean of Students\)](#) (received less than 10 days following the exam). Following receipt of an absence letter from the Student Assistance Center in support of the absence, discussions can begin related to grades and grading for the excused exam. Decisions on how to accommodate excused exams will vary on a case-by-case basis and may include writing the exam at a different time, providing of an alternate assignment, or adjusting the weighting of other components of the class.
- Exams that are missed for reasons other than those listed on the Dean of Students website (i.e., personal business, travel, employment, weddings, sporting event, forgot about exam, car wouldn't start, bus was late, semester has been busy, lack of preparation, not feeling well, concert, etc.) will be handled on a case-by-case basis with the instructor. Missing an exam without an absence letter from the Dean of Students will most likely result in a grade of zero (0) for that exam.
- It is the responsibility of the student to ensure that assignments are handed in at or before the due dates listed above. Assignments received after the due date will be considered late unless they are accompanied by a letter from the [Dean of Students \(Student Assistance Center\)](#), generated no later than 10 days after due date of assignment. Excuses that are within the student's control (ran out of toner in printer, hard drive crashed and lost file(s), computer was stolen, couldn't find parking, semester has been busy, several other things due at the same time, memory stick/thumb drive/flash drive broke, bus was late, not feeling well, it was windy outside) will not be accepted and it is the student's responsibility to avoid these potential issues. Students are **strongly** encouraged to take advantage of storage space provided by the University through Box (<https://uofi.app.box.com/login>). **Late assignments will be charged a penalty of 15 % per day.**

- Please confirm that any assignments uploaded to Compass are complete, and that the intended version/file has been uploaded. Grades will be provided based on the file(s) that are uploaded, and it is the student's responsibility to make sure that the proper file is uploaded and that the file contains the proper information. If there is an error made with uploading, changes can only be made prior to the deadline for the assignment, ideally by email with the instructor.
- Individual questions on exams and/or sections of student papers will not be re-graded if a student feels they have been graded unfairly; rather the entire essay, exam or assignment with a disputed grade will be re-assessed by the instructor, and the second grade will be deemed final, regardless of its value. Class time will be devoted to discussing and reviewing assignments/exams, and so students are asked to refrain from disputing grades until after the exam/assignment has been reviewed in class.
- Please show up on time for class. Late arrivals can be disruptive to ongoing lectures.
- For assignments that require handouts to be provided to the class, students are responsible for generating and distributing these documents (not the instructor)
- Please refrain from using cell phones in class.
- Participation in discussion periods is required and students will receive a grade based on their participation during discussions
- You are encouraged to ask questions at any time during class, and feel free to contact me by email outside of class with your questions

### **Academic Integrity**

The University of Illinois at Urbana-Champaign *Student Code* should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <http://studentcode.illinois.edu/>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

### **Students with Disabilities**

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor as soon as possible. To insure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class should contact Disability Resources and Educational Services (DRES) and see the instructor as soon as possible. If you need accommodations for any sort of disability, please speak to me after class, or make an appointment to see me, or see me during my office hours. DRES provides students with academic accommodations, access, and support services. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to [disability@uiuc.edu](mailto:disability@uiuc.edu).  
<http://www.disability.illinois.edu/>.

### **Emergency Response Recommendations**

Emergency response recommendations can be found at the following website: <http://police.illinois.edu/emergency/>. I encourage you to review this website and the campus building floor plans website within the first 10 days of class.

### **Family Educational Rights and Privacy Act (FERPA)**

Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <http://registrar.illinois.edu/ferpa> for more information on FERPA.