

## Life History of Fishes

**Course:** Water 384/584, Spring 2020, 3 credits

**Description:** Life histories of North American fishes as juveniles and adults. Discussion of life history traits including longevity, growth, maturation, fecundity, behavior, movements, and reproductive strategies. Life history considerations in fisheries management and conservation.

**Lectures:** Tuesday, Thursday, and Friday, 8:00-8:50, TNR 320

**Instructor:** Joshua K. Raabe, PhD

**Contact Information:** jraabe@uwsp.edu, TNR 174, 715-346-2689 (office phone)

**Office hours:** Wednesday, 9:00-11:00; by appointment (e-mail first); or if door is open

**Goal:** My overall goal is for students to learn a lot of interesting things about fish, in particular how studying life histories is important in management and conservation.

**Objectives:** By the end of the semester, students should be able to:

1. Understand the key concepts and terminology for fish life histories and how they relate to management and conservation
2. Describe methods used to study life histories and estimate important parameters
3. Visually identify and describe the life history of 30 or more species of fish found in North America
4. Be comfortable with finding, reading, and discussing scientific articles

**Communication:** Students are expected to routinely check their UWSP e-mail and Canvas course site for updates and materials.

**Canvas:** <https://uwstp.instructure.com/courses/280350>

**Reading Materials:** There is no dedicated text for this course, but there will be a number of scientific, peer-reviewed articles to read. Readings will be available on Canvas, with required readings noted in class and updated on the syllabus on Canvas.

- McPhee, J. 2002. *The Founding Fish*. Farrar, Straus, and Giroux, New York. This is a text rental and we will read one chapter for a quiz.

Free online books for background information on fish families and species:

- Becker, G. C. 1983. *Fishes of Wisconsin*. University of Wisconsin Press, Madison, WI. <http://digital.library.wisc.edu/1711.dl/EcoNatRes.FishesWI>.

- Etnier, D. A. and W. C. Starnes. 1993. *The Fishes of Tennessee*. University of Tennessee Press, Knoxville, TN. [http://trace.tennessee.edu/utk\\_utpress/2/](http://trace.tennessee.edu/utk_utpress/2/)

**Exams:** Three 100-point in-class exams will be given during the semester, each of which must be taken at the scheduled time or a score of zero will be assigned. Each exam will cover one-third of the course material; the final exam is not comprehensive. The exams will be during regularly scheduled 50-minute lecture periods and the final exam period. Illness or a family emergency may be cause for rescheduling an exam, but only if you notify me *prior* to the exam period (e-mail and voicemail have date and time stamps).

**Individual Quizzes:** There will be 12 quizzes on Canvas related to scientific papers. The quizzes are “open-paper” but **you must work alone**. Each quiz is worth 6 points, and I will keep your top 10 scores for a total of 60 points.

**Assignments:** 1. Three 25-point assignments of short answer questions will require you to think for yourself, probe the primary literature (peer-reviewed journals), and properly cite your sources. 2. One 20-point assignment will have you select a fish species (1 point), write a short summary of facts on that species (15 points), and briefly describe in-class (4 points).

**Presentations:** Groups of 2-3 students will give a presentation and develop fact sheets and three exam questions on a fish species. Presentations will be worth 110 points total: 1. 40 points - draft of presentation, fact sheet, and questions, 2. 50 points - final presentation, fact sheets, and questions - based off of evaluations from peers and myself, 3. 10 points – individual performance based on my evaluations, and 4. 10 points – individual performance based off group member evaluations of participation, effort, and quality of work.

**Presentation Evaluations:** To ensure attendance and to assist with my evaluation of group presentations, each student will evaluate the other group presentations and their group members. To receive the full 20 points, each student must submit their evaluation of their group members within a week of the presentation (2.5 points) and submit evaluations for other presentations on the day of the presentation (2.5 points per day).

**Participation:** To ensure attendance and participation in class, there will be 15 participation points that will come from attendance and/or participation of certain lectures, group discussions, guest speaker(s), and other activities. If a student’s participation points exceed 15, they will be counted as bonus points.

**Attendance:** I will not take daily attendance. *However*, as noted above there are points for group presentation evaluations and participation where you *must* be present in class. Also, exam questions may come from information not directly stated in PowerPoints or from discussions in class. Therefore, I highly recommend you attend class and have noticed in previous semesters that success is largely attributed to consistent attendance.

**Due Dates / Late Policy:** Assignments and presentation components can be submitted on Canvas prior to the due date. I will state due dates on each homework assignment, Canvas, and on an updated syllabus (on Canvas). ***All assignments will be deducted five points for each full day late***, so please turn assignments in a timely manner to avoid point reductions or a score of zero.

**Grade Breakdown:** Grades will be determined based on a student’s total points at the end of the semester. The table below shows point totals broken down by category and associated grades with +/- determinations. Noticeable participation and effort can be factored in for the student’s *benefit* in final course grade.

Category	Points	Grade	Points	Percentage
Exams (3)	300			
Required Readings Quizzes (top 10)	60	A	558 - 600	93 - 100%
Question Assignments (3)	75	A-	540 - 557	90 - 92.9%
Fish Species Facts Assignment (1)	25	B+	522 - 539	87 - 89.9%
Group Presentations		B	498 - 521	83 - 86.9%
Draft presentation	40	B-	480 - 497	80 - 82.9%
Final presentation	50	C+	462 - 479	77 - 79.9%
Individual performance (instructor)	10	C	438 - 461	73 - 76.9%
Individual performance (group)	10	C-	420 - 437	70 - 72.9%
Peer evaluations (other groups)	12.5	D+	402 - 419	67 - 69.9%
Peer evaluation (your group)	2.5	D	360 - 401	60 - 66.9%
Participation	15	F	≤ 359	≤ 59.9%
<b>Total</b>	<b>600</b>			

**WATR 584:** Graduate students will be held to a higher standard for grading and will give an individual presentation on their research.

**Classroom Environment:** I want everyone to feel comfortable and willing to participate in this course and will work to keep a positive classroom environment. Please contact me if you have any issues with a classmate or me. In addition, UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, they developed a set of expectations for all students and instructors, known as the *Rights and Responsibilities* document. Additional information:

<http://www.uwsp.edu/dos/Documents/Right%20and%20Responsibilities.pdf>

**Student Feedback:** To help improve this course and my teaching throughout the semester, I will ask for feedback during class periods, you can always talk to or email me, or you can provide *anonymous* feedback through an online survey (link below and also on Canvas). I will try to incorporate all constructive, well-stated suggestions and critiques. I also greatly appreciate completed UWSP course evaluations at the end of the semester.

<https://www.surveymonkey.com/r/SFHYNFZ>

**Academic Integrity:** I expect all students to strictly adhere to the high level of conduct and academic integrity at UWSP. All forms of plagiarism, cheating, and academic dishonesty are prohibited; violations will follow UWSP procedures. I reserve the right to use plagiarism software on assignments. The minimum penalty for a violation of academic integrity is failure (score of zero) of the assignment, but penalties can be stricter. For more information, please see the UWSP “Student Academic Standards and Disciplinary Procedures” section of the *Rights and Responsibilities*, Chapter 14:

[https://www.uwsp.edu/acadaff/Orientation/AcademicMisconductRulesAndProcedures\\_booklet.pdf](https://www.uwsp.edu/acadaff/Orientation/AcademicMisconductRulesAndProcedures_booklet.pdf)

**Disability Policy:** If you are a student with disabilities, please contact me at the beginning of the semester. We will work together to accommodate any disabilities according to UWSP policies and the Americans with Disabilities Act (ADA), a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. Students must register with UWSP Disability and Assistive Technology Center and provide proper documentation. For more information, please visit the links below and the Disability and Assistive Technology Center, located on the 6th floor of the Learning Resource Center (the Library).

<http://www4.uwsp.edu/special/disability/>

**Safety Procedures:** *Medical emergency:* call 911 or use the hallway red emergency phone, offer assistance if trained and willing, guide emergency responders to victim. *Tornado warning:* move to the second floor hallways and remain until told otherwise. *Fire alarm:* calmly evacuate building, meet in courtyard near library stairs, notify me or emergency command personnel of any missing individuals. *Active shooter:* Run/Escape, Hide, Fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Follow instructions of emergency responders. Additional details and information:

[www.uwsp.edu/rmgt](http://www.uwsp.edu/rmgt)

## Lecture & Assignment Schedule

This is a **TENTATIVE** schedule that I will revise with group presentations. If I make any other changes I will inform the class and update the schedule on Canvas.

Date	Topic	Presenter	Quiz / Assignment / Exam
21-Jan	Introduction & Scientific Papers	Raabe	
23-Jan	Key Concepts	Raabe	
24-Jan	Reproduction	Raabe	1. Perrone and Zaret 1979
28-Jan	Early Life	Raabe	
30-Jan	Growth	Raabe	2. Olson et al. 1998
31-Jan	Presentations	Raabe/Group	Group work
4-Feb	Survival/Mortality	Raabe	Homework 1
6-Feb	<b>No lecture - WI AFS</b>	NA	
7-Feb	Geographical Variation	Raabe	3. Heibo et al. 2005
11-Feb	Categorizing Life Hist	Raabe	
13-Feb	Exploitation	Raabe	4. Conover & Munch 2002
14-Feb	Water Quality	Raabe	
18-Feb	Crappies	Wolter	
20-Feb	Review, Presentations	Raabe/Group	Group work
21-Feb	<b>Exam 1</b>	NA	
25-Feb	Sturgeon & Paddlefish	Raabe	
27-Feb	Bowfin & Gar	Raabe	5. Koch et al. 2009
28-Feb	Fish Genetics	Gehri	
3-Mar	Bluegill	Raabe	6. Gross & Charnov 1980
5-Mar	Black Basses	Raabe	Draft Presentation Materials
6-Mar	Spotted Seatrout	Raabe	
10-Mar	Walleye	Raabe	Homework 2
12-Mar	Chubs & Darters	Raabe	7. Peoples et al. 2013
13-Mar	<b>No lecture</b>		
16-20 Mar	<b>NO LECTURES OF LAB THIS WEEK - SPRING BREAK!!!</b>		
24-Mar	Brook Trout	Raabe	8. Witzel & Macrimmon 1983
26-Mar	2 Groups - TBD	Groups	
27-Mar	Lake Whitefish	VanDeHey	
31-Mar	2 Groups - TBD	Groups	
2-Apr	1 Group - TBD, Review	Groups	
3-Apr	<b>Exam 2</b>		
7-Apr	2 Groups - TBD	Groups	
9-Apr	2 Groups - TBD	Groups	
10-Apr	Burbot	Raabe	9. Fischer 2000
14-Apr	Icelandic Fishes	Frater	
16-Apr	American Shad	Raabe	10. Founding Fish Ch. 5
17-Apr	Graduate Student Research	Grad Students	
21-Apr	Gizzard Shad	Raabe	11. Stein et al. 1995
23-Apr	Eels & Lampreys	Raabe	Homework 3
24-Apr	Catfishes	Raabe	
28-Apr	Temperate Basses	Raabe	12. Feiner et al. 2013
30-Apr	TBD	Raabe	Fish Facts
1-May	Fish Facts Friday	Class	
5-May	Billfishes & Tunas	Raabe	
7-May	Sharks	Raabe	
8-May	<b>Review</b>	Raabe	Student evaluations
12-May	<b>Exam 3, Thursday, 10:15-12:15</b>		Exam 3