

## Life History of Fishes

**Course:** Water 384/584, Fall 2019, 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 464

**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/222088>

**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 5 points, and I will keep your top 10 scores for a total of 50 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 3-4 students will give a presentation and develop fact sheets and three exam questions on two fish species. Presentations will be worth 120 points total: 1. 40 points - draft of presentation, fact sheet, and questions - due one week before the presentation, 2. 50 points - overall presentation - based off of evaluations from peers and myself, 3. 10 points – individual performance based on my evaluations, and 4. 20 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 seven other presentations on the day of the presentation (2.5 points each); you will receive 2.5 bonus points if you evaluate all presentations.

**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)	50	A	558 - 600	93 - 100%
Question Assignments (3)	75	A-	540 - 557	90 - 92.9%
Fish Species Facts Assignment (1)	20	B+	522 - 539	87 - 89.9%
Group Presentations		B	498 - 521	83 - 86.9%
Draft presentation, fact sheet, questions	40	B-	480 - 497	80 - 82.9%
Overall presentation	50	C+	462 - 479	77 - 79.9%
Individual performance (instructor)	10	C	438 - 461	73 - 76.9%
Individual performance (group)	20	C-	420 - 437	70 - 72.9%
Peer evaluations (7 other groups)	17.5	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/Escapes, 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 update with group numbers for presentations. If I make any other changes I will inform the class and update the schedule on Canvas.

Date	Topic	Presenter	Quiz / Assignment / Exam
3-Sep	Introduction & Scientific Papers	Raabe	
5-Sep	Key Concepts	Raabe	
6-Sep	Reproduction	Raabe	1. Perrone and Zaret 1979
10-Sep	Early Life	Raabe	
12-Sep	Presentations	Raabe/Group	Group work
13-Sep	Growth	Raabe	2. Olson et al. 1998
17-Sep	Survival/Mortality	Raabe	Homework 1
19-Sep	Geographical Variation	Raabe	3. Heibo et al. 2005
20-Sep	Categorizing Life Hist	Raabe	
24-Sep	Exploitation	Raabe	4. Conover & Munch 2002
26-Sep	Water Quality	Raabe	Upload presentation scientific paper
27-Sep	Spotted Seatrout	Raabe	
1-Oct	Icelandic Fishes	Frater	
3-Oct	Review, Presentations	Raabe/Group	Group work
4-Oct	<b>Exam 1</b>	NA	
8-Oct	Bowfin & Gars	Raabe	5. Koch et al. 2009
10-Oct	Eels & Lampreys	Raabe	
11-Oct	Brook Trout	Raabe	6. Witzel & Macrimmon 1983
15-Oct	Brown & Rainbow Trout	Group	
17-Oct	Lake Trout & Cisco	Group	
18-Oct	Lake Whitefish	VanDeHey	
22-Oct	Chinook & Coho Salmon	Group	Homework 2
24-Oct	Bluegill	Raabe	7. Gross & Charnov 1980
25-Oct	Crappies	Wolter	
29-Oct	Large & Smallmouth Bass	Group	
31-Oct	Muskellunge & Pike	Group	
1-Nov	Chubs & Darters	Raabe	8. Peoples et al. 2013
5-Nov	Lake Sturgeon & Paddlefish	Group	
7-Nov	Carps, Review	Raabe	
8-Nov	<b>Exam 2</b>		
12-Nov	Walleye & Yellow Perch	Group	
14-Nov	Freshwater & Red Drum	Group	
15-Nov	Burbot	Raabe	9. Fischer 2000
19-Nov	Flathead & Blue Catfish	Group	
21-Nov	Catfishes	Raabe	Homework 3
22-Nov	Fish Genetics	Gehri	
26-Nov	American Shad	Raabe	10. Founding Fish Ch. 5
28-Nov	<b>No Lecture - Thanksgiving</b>		
29-Nov	<b>No Lecture - Thanksgiving</b>		
3-Dec	Temperate Basses	Raabe	11. Feiner et al. 2013
5-Dec	Gizzard Shad	Raabe	12. Stein et al. 1995, Fish Facts
6-Dec	Fish Facts Friday	Class	
10-Dec	Billfishes & Tunas	Raabe	
12-Dec	Sharks	Raabe	
13-Dec	<b>Finish &amp; Review</b>	Raabe	Student evaluations
16-Dec	<b>Exam 3, Monday, 8:00-10:00</b>		Exam 3