

## Life History of Fishes

**Course:** Water 384/584, Fall 2021, 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 352

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

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

**Office hours:** Wednesday, 9:00-10:45 (online / office); & by appointment (e-mail first)  
<https://wisconsin-edu.zoom.us/j/97775896534>

**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/435765>

**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>

- Lyons, J., P. A. Cochran, and D. Fago. 2000. *Wisconsin Fishes 2000: Status and Distribution*.

<https://search.library.wisc.edu/digital/AC66J5QOSJAO5Y8M/pages/AJKISYQOAZYL78M>

- 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 exams will be given during the semester, with each exam covering one-third of the course material; exams two and three are not cumulative but aspects from exam one will carry throughout the semester. The exams will be administered through Canvas and will be open resources (notes, websites, etc.) but you cannot talk with or receive materials from other students or people. The exams will be during regularly scheduled lecture periods and the final exam period, although I will allow additional time. Exams need to be taken during these time periods otherwise a score of zero will be assigned. 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 20-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 comment on others (4 points).

**Presentations:** Groups of 2-3 students will give a presentation and develop a factsheet and three exam questions on a fish species selected by the group. Presentations will be worth 100 points total: 1. 40 points - draft of presentation, fact sheet, and questions, 2. 40 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:** Each student will evaluate other group presentations and their group members to provide feedback, ensure attendance and group work, and assist with my evaluations. Evaluations of other presentations will be handed in at the end of the class period, while evaluations of group members must be submitted on Canvas by the night of your presentation. Evaluations will be worth 20 points total.

**Content Quizzes and Participation:** To ensure students keep up with content and participate in class, there will be 40 points for short content quizzes on Canvas and participation (e.g., discussions or surveys) points that will come from participation associated with certain lectures, discussions, guest speaker(s), and other activities. If a student’s participation points exceed 40, they will be counted as bonus points.

**Attendance:** I will not take always take attendance, however, as noted above there are points for group presentation evaluations and participation where you *must* be present to receive points; please inform me *prior* to absences. Also, exam questions may come from information not directly stated on slides or from discussions in class. Therefore, I highly recommend you attempt to attend class and participate, as I 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 10% for each day late (e.g., 2 points/day for 20 point assignment)*, 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 – see table below. 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)	60	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	40	B-	480 - 497	80 - 82.9%
Final presentation	40	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%
Evaluations	20	D+	402 - 419	67 - 69.9%
Content Quizzes / Participation	40	D	360 - 401	60 - 66.9%
<b>Total</b>	<b>600</b>	F	≤ 359	≤ 59.9%

**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 online 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, I will ask for feedback through surveys and exam questions, 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 link 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. More information: [www.uwsp.edu/rmgt](http://www.uwsp.edu/rmgt)

**Face Coverings:** At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the [Disability and Assistive Technology Center](#) to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

**Other Guidance:**

- Please monitor your own health each day. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
  - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

## Lecture & Assignment Schedule

This is a **TENTATIVE** schedule that I will update with group presentations once we select species. Please note that due dates for content quizzes will only be on Canvas and \*scientific paper quizzes are due by 11:59 PM the night BEFORE that lecture, even though noted on the lecture date below\*.

Date	Topic	Presenter	Quiz / Assignment / Exam
31-Aug	<i>Class not yet started</i>		
2-Sep	Introduction & Scientific Papers	Raabe	
3-Sep	Key Concepts	Raabe	
7-Sep	Reproduction	Raabe	1. Perrone and Zaret 1979*
9-Sep	Early Life	Raabe	
10-Sep	Growth	Raabe	2. Olson et al. 1998*
14-Sep	Presentations	Raabe/Group	Group work
16-Sep	Survival/Mortality	Raabe	Homework 1
17-Sep	Geographical Variation	Raabe	3. Heibo et al. 2005*
21-Sep	Categorizing Life Histories	Raabe	
23-Sep	Exploitation	Raabe	4. Conover & Munch 2002*
24-Sep	Water Quality	Raabe	
28-Sep	Southern Fisheries	Dembkowski	
30-Sep	Review & Presentations	Raabe/Group	Group work
1-Oct	<b>Exam 1</b>	NA	
5-Oct	Sturgeon & Paddlefish	Raabe	
7-Oct	Bowfin & Gars	Raabe	5. Koch et al. 2009*
8-Oct	Eels & Lampreys	Raabe	
12-Oct	Black Basses	Raabe	
14-Oct	Bluegill	Raabe	6. Gross & Charnov 1980*
15-Oct	Walleye	Raabe	Draft presentation materials
19-Oct	Chubs & Darters	Raabe	7. Peoples et al. 2013*
21-Oct	Genetics in Fisheries	Homola	Homework 2
22-Oct	Catfishes	Raabe	
26-Oct	Brook Trout	Raabe	8. Witzel & Macrimmon 1983*
28-Oct	Lake Whitefish	VanDeHey	
29-Oct	Group Presentations - TBD	Groups	
2-Nov	Group Presentations - TBD	Groups	
4-Nov	TBD & Review	Raabe	
5-Nov	<b>Exam 2</b>		
9-Nov	Temperate Basses	Raabe	9. Feiner et al. 2013*
11-Nov	Group Presentations - TBD	Groups	
12-Nov	Group Presentations - TBD	Groups	Pick Species for Factsheet
16-Nov	Group Presentations - TBD	Groups	
18-Nov	Icelandic Fishes	Frater	Homework 3
19-Nov	Burbot	Raabe	10. Fischer 2000*
23-Nov	Spotted Seatrout	Raabe	
25-Nov	<b>No Lecture - Thanksgiving</b>		
26-Nov	<b>No Lecture - Thanksgiving</b>		
30-Nov	American Shad	Raabe	11. Founding Fish Ch. 5*
2-Dec	Gizzard Shad	Raabe	12. Stein et al. 1995*
3-Dec	Billfishes & Tunas		Post Species Factsheet
7-Dec	Sharks	Raabe	
9-Dec	Asian Carps	Schaick	Comment On Other Factsheets
10-Dec	Carp & Review	Raabe	
13-Dec	<b>Exam 3, Monday, 8:00-10:00</b>		Exam 3