

Life History of Fishes

Course: Water 384/584, Spring 2022, 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/91824169049>

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/479241>

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/AJKISYQOAZYZL78M>

- 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/

Exams (300 points): 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 (60 points): 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 (80 points): 1. Three 20-point questions assignments will require you to probe the primary literature (peer-reviewed journals), answer in your own words, and properly cite sources. 2. One 20-point assignment will have you select a fish species (1 point), develop a fact sheet (15 points), and comment on other fact sheet (4 points).

Presentations (100 points): 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 (20 points): 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. Each evaluation is worth 2 points, so you may miss 2 evaluations and still receive full point, or receive bonus points.

Content Quizzes, Participation, & Surveys (40 points): To ensure students keep up with content, participate in class, and have opportunities to improve the course and my teaching, there will be short content quizzes and student feedback surveys on Canvas and participation 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%
Total	600	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

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/Escapes, 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

COVID-19: The health and safety of our students, faculty and staff are top priorities. We are committed to addressing concerns regarding the 2019 novel coronavirus (COVID-19) and will continue to provide information on how we are slowing the spread on our campus. All students, faculty and staff will follow the UWSP policies and guidelines pertaining to the COVID-19. See: <https://www.uwsp.edu/coronavirus/Pages/default.aspx>, call the UWSP COVID hotline at 715-346-2619, Monday through Friday from 7:45 a.m.-4:30 p.m., or email covid@uwsp.edu.

Until further notice, the **wearing of face coverings is mandatory** at all UW-Stevens Point campus locations, 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 my discretion. Failure to adhere to this requirement could result in formal withdrawal from the course.

- 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 me 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: *scientific paper quizzes are due by 11:59 PM the night **BEFORE** that lecture (typically Wednesday night), but noted on the lecture date below, while content quizzes will typically be due on Thursday nights – check Canvas *.

Date	Topic	Presenter	Quiz / Assignment / Exam
25-Jan	Introduction & Scientific Papers	Raabe	
27-Jan	Key Concepts	Raabe	
28-Jan	Reproduction	Raabe	1. Perrone and Zaret 1979*
1-Feb	Early Life	Raabe	
3-Feb	Growth	Raabe	2. Olson et al. 1998*
4-Feb	Presentations	Raabe/Group	Group work
8-Feb	Survival/Mortality	Raabe	Homework 1
10-Feb	Geographical Variation	Raabe	3. Heibo et al. 2005*
11-Feb	Categorizing Life Histories	Raabe	
15-Feb	Water Quality	Raabe	
17-Feb	Exploitation	Raabe	4. Conover & Munch 2002*
18-Feb	Southern Fisheries	Dembkowksi	
22-Feb	Lampreys	Raabe	
24-Feb	Review, Presentations	Raabe/Group	Group work
25-Feb	Exam 1		
1-Mar	Sturgeon & Paddlefish	Raabe	
3-Mar	Bowfin & Gar	Raabe	5. Koch et al. 2009*
4-Mar	American Eel	Raabe	
8-Mar	Black Basses	Raabe	
10-Mar	Bluegill	Raabe	6. Gross & Charnov 1980*
11-Mar	Walleye	Raabe	Draft Presentation Materials
15-Mar	Lake Whitefish	VanDeHey	Homework 2
17-Mar	Brook Trout	Raabe	7. Witzel & Macrimmon 1983*
18-Mar	Spotted Seatrout	Raabe	
21-25 Mar	NO LECTURES OR LAB THIS WEEK - SPRING BREAK!!!		
29-Mar	Genetics in Fisheries	Homola	
31-Mar	Chubs	Raabe	8. Peoples et al. 2013*
30-Mar	Species TBD	Groups	
5-Apr	Species TBD	Groups	
7-Apr	Darters, Review	Raabe	
8-Apr	Exam 2		
12-Apr	Species TBD	Groups	
14-Apr	American Shad	Raabe	9. Founding Fish Ch. 5*
15-Apr	Species TBD	Groups	Select Species for Factsheet
19-Apr	Species TBD	Groups	
21-Apr	Gizzard Shad	Raabe	10. Stein et al. 1995*
22-Apr	Species TBD	Groups	
26-Apr	Suckers or TBD	Raabe	Homework 3
28-Apr	Burbot	Raabe	11. Fischer 2000*
29-Apr	Icelandic Fishes	Frater	
3-May	Catfishes	Raabe	
5-May	Temperate Basses	Raabe	12. Feiner et al. 2013*
6-May	Billfishes & Tunas	Raabe	Post Species Factsheet
10-May	Sharks	Raabe	
12-May	Invasive Carps	Schaick	Comment On Other Factsheets
13-May	Common Carp & Review	Raabe	
17-May	Exam 3, Tuesday, 10:15-12:15		Exam 3