

Syllabus and Schedule

Meeting Time and Room: T 1:00-3:50pm, Gallagher Business Building (GBB) L09

Instructor: Andrew Whiteley, Bioresearch Building (BRB) 004, andrew.whiteley@umontana.edu

TA: Colter Feuerstein, colter.feuerstein@umconnect.umt.edu

Office Hours:

Whiteley: Thursdays 3:30-5:00 in tent to the North of the Clapp Building, this is by appointment only since I will have to meet you in this outdoor classroom space. Otherwise office hours are by appointment (andrew.whiteley@umontana.edu)

Feuerstein: by appointment (colter.feuerstein@umconnect.umt.edu)

**We are not always on email, please plan for a 24 hour delay.

Text Book & App: *Fisheries Techniques, Third Edition*. Zale, Parrish, and Sutton, editors. (scanned copies of chapters will be available on Moodle)

Other useful items: (1) Holton, C.J. and H.E. Johnson.2003. Field Guide to Montana Fishes. 3rd Edition. Montana Fish, Wildlife, and Parks Helena, MT. or online at <http://fieldguide.mt.gov/>
(2) New Fishes of Montana (Fish MT) app for smart phones and tablets (download free)

Class Resources: We will be using Moodle for the class (WILD 291.01). Go there for readings, class data sets, assignments, and announcements.

Readings: See syllabus for the reading schedule. Read chapters and papers for examples, applications, generalizations, and principles. Questions based on *lecture, activities, and reading material* will appear on the weekly quizzes and final exam.

Course Description: This course will provide an overview of fisheries techniques as they are applied in Montana. Students will learn methods commonly used to assess stream habitats, how to capture and handle fishes, how to estimate fish ages, how to estimate abundance, and factors that influence fish distributions. Case studies and guest lectures will expose students to current issues faced by fisheries managers in Montana. Field trips will provide hands-on experience.

Learning Outcomes:

1. You will learn field techniques used for sampling fishes in Montana
2. You will understand and be able to measure habitat requirements of Montana fishes
3. You will become familiar with the types of data encountered by fisheries biologists and professionals
4. You will learn about fisheries management and conservation issues in a specific river drainage in western Montana (Clark Fork River)
5. You will learn about the fishes found in western Montana

Weekly Quizzes: Class each week, except as noted due to field activities, will begin with a short multiple-choice quiz. This quiz will cover the reading material(s) and is meant to demonstrate that you did the reading and you are ready to discuss and work on problems related to the reading during the class period. These quizzes will take the place of a mid-term exam.

Final Projects: I will provide you with some data and ask you to answer questions and perform some analyses of those data to support your answers. The final project will be due at the end of the semester and will be in addition to the final exam. Expect to receive a data set, create several graphs, and interpret those graphs in the context of a fisheries issue managers currently face in the Clark Fork Basin.

Class Policy: Some of the field and lab projects will be done by teams of students so the resulting data are team or class property. Students are free to discuss results, but all assignments must be prepared individually. *All written material, calculations and graphs to be handed in must be your own work (answers must be in your own words).* **All assignments must be submitted on time; penalties will be 5% of grade each day late unless other arrangements have been made.**

Missing Class: If you need to miss a class, please get notes from another student, perform the readings, review the notes and then come into office hours with questions regarding the material. If you need to miss a lab, please let me know in advance so we can attempt to accommodate your request. You will be held accountable for your absences through class attendance. Your attendance will contribute to your classroom participation score.

Field Lab Transportation: I have intentionally planned field activities to be close to campus this semester. These field activities will be walkable, bikeable, or a short drive from campus. You are allowed to drive your own vehicle to any field trip. Students are welcome to, but *not required* to drive to field learning sites. Students who drive their own vehicles will not be reimbursed for mileage and are covered only by their own auto insurance. If students choose to drive together (car pool), please note the driver is liable for not only themselves but also the passenger (as with any private vehicle). If you have a passenger in your vehicle, we recommend that you follow all safety recommendations for UM group travel:

1. Limit to one student per row in each vehicle
2. Masks are required in all vehicles
3. If running heat or air conditioning, recirculating vehicle air should be disabled.
4. All occupants of shared vehicles should sit in the same seat in the same vehicle for the duration of the trip (i.e. seats are assigned). In cases where driver fatigue occurs, wipe down high touch areas in both seating areas with appropriate disinfectant before switching drivers.

If you choose to ride your bike to a field trip, you assume the same liability during your travel as with a motor vehicle and you are responsible for preventing theft of your bike. There might not always be good places to lock your bike at the field site, check with me in advance if you have this concern.

Statement on safety related to COVID-19: I expect that students, the TA, and I will follow all UM safety protocols (including disinfecting their workspace and equipment, using hand sanitizers, and using masks properly for all inside and outside class activities). Please contact DSS for either an accommodation to be completely remote for the semester or for any safety protocol modification you may need (*depending on the needs we may or may not be able to accommodate the modification without requesting that you complete the class remotely*). **If students decide not to follow all safety protocols, I will immediately adjust our F2F (face-to-face) activities and transition towards full remote learning for the entire class.**

This is for your safety, the TA's safety, as well as mine to minimize any risk of transmission. Secondary contacts of asymptomatic people will likely occur for all of us whether through work, socializing, or school. Working to reduce transmission increases the probability that we all stay healthy, be able to maintain all F2F activities planned, and the better the class will be for all. That said, I will be prepared to have all assignments able to be completed remotely if needed, so if you are feeling sick or have been

exposed please follow the UM Policy. Please let me know and I will excuse or allow you to make up any participation points or any points from F2F activities.

If you feel uncomfortable with any proposed activity, especially if we see a rise in UM cases, please reach out and we can accommodate more remote learning through the rest of the semester. Again, this is a novel and ever-changing landscape so mutual respect, honest and early communication, and flexibility is needed for us to have a successful semester.

Academic Honesty: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. If students are caught cheating or plagiarizing on an assignment, they will get a zero for the assignment. If students are caught cheating on more than one assignment or on an exam, they will fail the course.

Final is Thursday November 19th from 3:20-5:20pm. **NO EARLY EXAMS WILL BE GIVEN!**

Procedures/policies accommodating disabilities

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Grading policy:

Final letter grades will be assigned as follows:

A = ≥ 92%	A- = 89-91%	
B+ = 87-88%	B = 82-86%	B- =79-81%
C+ = 77-78%	C= 72-76%	C- =69-71%
D + = 67-68%	D = 63-66%	D = 60-63%
F = <60%		

Important Dates Restricting Opportunities to Drop a Course Autumn 2020:

Deadline	Description	Date
To 15 th instructional day	Students can drop classes on CyberBear with refund & no “W” on Transcript	September 9 @5 PM
16 th to 45 th instructional day	A class drop requires a form with instructor and advisor signature, a \$10 fee from registrar’s office, student will receive a ‘W’ on transcript, no refund.	September 10 – October 21 @5 PM

Deadline	Description	Date
Beginning 46 th instructional day	<p><u><i>Students are only allowed to drop a class under very limited and unusual circumstances.</i></u> Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, switching majors, and similar reasons are not among those limited and unusual circumstances. If you want to drop the class for these sorts of reasons, make sure you do so by the end of the 45th instructional day of the semester. Requests to drop must be signed by the instructor, advisor, and Associate Dean (in that order) so if you pursue this request, <i>leave sufficient time to schedule meetings with each of these individuals</i> (generally this will take at least 3-5 working days). A \$10 fee applies if approved. Instructors must indicate whether the individual is Passing or Failing the class at the time of request.</p>	October 22

Lecture Schedule (subject to change)

Date	Lecture Topic and Readings
8/25	Introduction <i>Fishes of Clark Fork River, MTFishes (Fishes of Montana) app</i>
9/1	Field Activity: Electrofishing <i>Meet in Greenough Park at the parking lot by the lower (downstream) footbridge (near 1001 Monroe St, Missoula, MT 59802)</i>
9/8	Field Activity: Kicknetting on Clark Fork River (upstream end of Jacob's Island) <i>Meet at campus side of footbridge</i>
9/15	Conducting Fisheries Investigations, Data Management Readings: <i>Fisheries Techniques, Chapters 1 and 2 (Sections 2.1 and 2.2 p. 15-20 only).</i> Activities: <i>FWP data sheets, FishMT database exploration</i>
9/22	Care, Handling, and Examination of Sampled Organisms Readings: <i>Fisheries Techniques, Chapter 5</i> Activities: <i>Fishes of Clark Fork River, Data from kicknetting</i>
9/29	Electrofishing Work with Electrofishing Data, Readings: <i>Chapter 8</i> Activities: <i>Class electrofishing data, Capture-Mark-Recapture Activity</i>
10/6	Field Activity: Finding Fish Underwater <i>Meet in Greenough Park at the covered picnic tables at the Greenough Park Pavilion (1629 Monroe St, Missoula, MT 59802)</i> Combination of GoPro and snorkeling Readings: <i>Fisheries Techniques, Chapter 17.</i> Assignment: <i>Describe 3 observations from your time snorkeling or viewing fish underwater, each observation should be a short paragraph, due by 9/22 on Moodle</i> Field procedures for this week will be determined by the number of people who want to snorkel. It might be necessary to schedule an extra snorkeling session during this week to allow us time to sterilize snorkel equipment between sessions (days).
10/13	Freshwater Aquatic Habitat Measurements Readings: <i>Fisheries Techniques, Chapter 4; Archer, E. K. et al. 2018. PacFish InFish Biological Opinion (PIBO) Monitoring Program. Effectiveness Monitoring Sampling methods for Stream Channel Attributes. US Forest Service.</i> Form Teams: <i>present your habitat measurement protocol to the class, provide list of equipment you need</i>
10/20	Field Activity: Habitat Assessments <i>Teams be ready to execute your protocol</i> <i>Meet in Greenough Park at the covered picnic tables at the Greenough Park Pavilion</i>
10/27	Statistical Techniques and R Introduction Reading: <i>Fisheries Techniques, Chapter 2 (Sections 2.1 through 2.5, pp 15-30)</i> Activity: <i>Visualization of electrofishing and habitat data</i>

- 11/3 Election Day, no class
- 11/10 Design and Analysis of Tagging Studies
Readings: Fisheries Techniques, Chapter 11 (excluding 11.4.4 through 11.5), paper from the primary literature based on PIT tags (TBD)
Demonstration: Pit tag antennas, practice pit tagging, other types of tags
Activity: Pit tag antenna data
- 11/17 Length, Weight, and Associated Indices, Age and Growth
Readings: Fisheries Techniques, Chapter 15
Activity: Analysis of length data (length-frequency histograms), analysis of otoliths/scales
- 11/19 Final Exam Thursday November 19th from 3:20-5:20pm, will cover lectures, lab concepts, and readings from the entire semester.

Field Labs: We will meet at 1:00 at the designated location above. Except for the kicknetting activity on 9/8, this will be at the Greenough Park, at either the lower foot bridge parking lot or the pavilion with covered picnic tables.