FISH/BIOL 427: Ichthyology

4 credits

Meeting:  
**Lecture:** MWF 9:10-10:10a  
**Juneau**  
Anderson 204  
**Fairbanks**  
O’Neill 201

**Lab:** Wednesday 1:30 - 4:30p  
**Juneau**  
Lena Point 105  
**Fairbanks**  
Arctic Health 1W09

Instructor:  
Dr. Megan McPhee  
309 Lena  
(907) 796-5464  
mvmcphee@alaska.edu

Office Hours:  
M, W, F 10:10-11:10a @ Anderson Bldg.  
Or by appointment (in person, Skype, Google Hangout, phone)

TAs:  
**Juneau**  
Court Pegus  
215 Lena  
(907) 796-5461  
ccpegus@alaska.edu  
**Fairbanks**  
Genevieve Johnson  
Irving II 138  
(907) 474-2486  
gmjohnson7@alaska.edu
Prerequisites: BIOL 115 and BIOL 116
Or permission of instructor

Readings: NO REQUIRED TEXTBOOK. Readings will be assigned on a weekly basis and will consist of textbook sections, peer-reviewed publications, and other documents. Pdfs will be posted to the course Google Drive ‘Readings’ folder.

If you want to buy a textbook, probably the best option would be:

UAF’s library has digital access to a copy:
http://catalog.library.uaf.edu/uhcbin/cgisirsi/?ps=TFXUMz05wo/UAFRAS/166840008/2/1000

Another option is Moyle & Cech, 2004. Fishes, an Introduction to Ichthyology, 5th ed. Pearson/Benjamin Cummings

For taxonomic information, the standard reference is Joe Nelson’s Fishes of the World, Wiley. We’re currently up to the 5th ed., which was published posthumously in 2016 with co-authors T. Grande and M. Wilson.

Course Description: Introduction to the systematics, general morphology, physiology, reproductive biology, behavior, ecology, and biogeography of fishes. Includes laboratory.

Course Evaluation:
Lecture (65%)
- Class participation: 4%
- Phylogenetics Notebook: 15%
- Oral Presentation: 7%
- Midterm I: 12%
- Midterm II: 12%
- Final: 15%

Laboratory (35%)
- Lab Exercises: 25%
- Practicals: 10%

Grading Scale (instructor reserves right to grade on curve):

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Class participation:
Asking and answering questions during lectures and class presentations is the basis for your participation grade. Quality participation includes asking questions that will improve your (and your classmates’) understanding of the material and contributing to, while not dominating, classroom discussion.

Phylogenetics Notebook:
I have found that lecturing about the phylogenetics/classification of fishes is not the most effective way for students to learn this material. This year we’re doing something different, taking a “learning by doing” approach. Across the entire semester you will be assembling your own phylogenetics notebook. Each Friday we’ll tackle a new part of the entire fish tree. Using the scholarly resources we provide, you will sketch out the phylogeny (tree depicting evolutionary relationships) of fish orders, with accompanying representative sketches (trees plus fish groups, notable representatives), defining characteristics (when available), and alternative phylogenetic hypotheses (and data types supporting each).

The goal is to assist you in understanding (and, let’s face it - memorizing) the classification of fishes using the hand-brain connection (writing and sketching as tools for better memorization) and learning by doing (having to distill competing hypotheses for phylogenetic relationships and integrating multiple sources).

The hour on Fridays will be spent working on the notebook. Each section is due the following Monday by 5p unless stated otherwise. Please scan/photograph relevant sections and email them to me. You will not be graded on the artistic quality of your sketches but rather how well they identify and help you remember specific groups.

More detailed information about this assignment can be found in the Google Drive class folder under ‘Phylogenetics Notebook Resources’.

Oral Presentation:
Each student will write and deliver a “meet a fish” presentation at the end of the semester. The purpose of this exercise is to 1) provide the class with a more in-depth look into a species or group of fishes; 2) get you more comfortable with giving oral presentations. We’ll have a sign up sheet where you can identify your fish group or species, which must be unique (we can’t have everyone presenting about hagfishes!)

More guidance on this assignment can be found in the Google Drive class folder, in the ‘Oral Presentation Grading Rubric’ doc.
Course Goals:
The goal of this course is to provide students with an introduction to the general biology and systematics of fishes. In lecture students will be exposed to major lineages and biogeography of fishes as well as anatomy, physiology, reproductive biology, life history, ecology, and behavior of fishes. In lab students will gain hands-on exposure to anatomy, behavior, taxonomy, and identification of fishes.

Learning Outcomes:
You should emerge from this course with -
• a working knowledge of fundamental fish taxonomy and identification
• a basic understanding of phylogenetic classification and methodology
• a working knowledge of fundamental fish biology (anatomy, physiology, reproductive biology, life history, behavior, and ecology)
• ability to synthesize different aspects of fish biology and to communicate such a synthesis in both short-written and oral forms.

Instructional Methods:
The course will be a combination of lecture and lab. Lecture materials will be presented both in class and on Google Drive. Active discussion during the class is encouraged. Laboratory methods will include hands-on participation in dissections and species identification.

Course Policies:
Frequent, unexcused absences will detract from your ability to learn the material (and will count against your participation score). If you are unable to attend lecture or lab, please talk to me prior to your absence.

When traveling, you can join lecture via Pexip. Instructions for using pexip can be found in the course Google Drive document ‘Pexip-Instructions’.

Assignments are due at the time indicated on the syllabus. Late assignments will be docked 10% per day past due (including weekends). Missed exams will receive zero points. If you cannot make an exam or assignment deadline for a legitimate reason, please let me or your TA know prior to the date.

Please review the University of Alaska Student Code of Conduct:
UAF: http://www.uaf.edu/catalog/current/academics/regs3.html
UAS: http://www.uas.alaska.edu/students/guide/conduct.html
The following **guidelines regarding academic integrity** for FISH/BIOL 427 are:

1) Students will not collaborate on any quizzes, in-class exams, or take-home exams that contribute to their grade in a course, unless the course instructor grants permission. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.

2) Students will not represent the work of others as their own. A student will attribute the source of information not originating from the student (direct quotes or paraphrases) in compositions, theses, and other reports.

3) No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

Any violation will result in an automatic zero credit for applicable assignments, quizzes, or exams.

**Support Services:**
I encourage you to contact me with any questions you may have about the course materials and the final project. The staff of the Rasmuson and Egan libraries can also assist you with location of necessary reference materials for final project.

**Disability Services:**
The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF/UAS students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (UAS: 907-796-6000; UAF: 907-474-5655) to provide reasonable accommodation to students with disabilities; *please let me know* if you need such accommodations.

**Statement of Nondiscrimination:**
The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University’s commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA’s statement of nondiscrimination available at [www.alaska.edu/titleIXcompliance/nondiscrimination](http://www.alaska.edu/titleIXcompliance/nondiscrimination)

**Course Schedule:**
Please refer to ‘Lecture Schedule Fall 2018’ and the appropriate ‘Lab Schedule [Juneau or Fairbanks] Fall 2018’ documents in Google Drive; these are living documents (i.e., subject to change) so check frequently for updates.