

SYLLABUS FOR FW315: ICHTHYOLOGY

(FALL 2022)

Course Name: Ichthyology
Course Number: FW315
Credits: Three
Lectures: Monday/Wednesday/Friday 11:00 to 11:50
Location: Nash 206

Instructor: **Brian Sidlauskas**
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Office Hours: Wednesdays 2 to 4, or by appointment

Recommended Prerequisites: One year of introductory biology is strongly recommended. If you have taken it, the unit on diffusion and osmosis from introductory chemistry will help to understand the lectures on respiration and buoyancy herein.

Recommendation for Concurrent or Subsequent Enrollment: FW315 is a standalone course, but students are encouraged to enroll concurrently or subsequently in FW316 (Systematics of Fishes) for increased exposure to topics in the diversity, relationships, identification, and evolution of fishes.

Course description from the OSU Catalog: A survey of the diversity of biological adaptations of fishes. Topics include physiological and zoogeographical adaptations, reproduction, evolution, cladogenesis, morphology, behavior, and genetics.

Measurable student learning outcomes: We will study the anatomy, physiology, sensory biology, life history, diversity, evolution, behavior, and ecology of the fishes, the most diverse of all vertebrate groups and the dominant group of vertebrates in aquatic habitats. During this course, you will learn to:

- 1) Recognize the major anatomical features of fishes, describe their evolutionary origins and functional morphology, and explain how fishes use these adaptations for predation, defense and communication
- 2) Synthesize information on the anatomical, physiological, sensory and behavioral attributes of fishes to explain how those attributes adapt them to life in aquatic habitats ranging from isolated lakes and swift rivers to the oceanic abyss
- 3) Describe the wide diversity of life history and reproductive strategies among fishes, and explain how ecological and evolutionary factors influence the strategy exhibited by each species and each sex, and
- 4) Synthesize information on anatomy, physiology, behavior, life history, genetics, ecology, geography, and human dimensions to explain how and why

fish species become threatened and endangered, and how scientists and managers use such data to conserve biodiversity.

Aside from serving as a comprehensive introduction to the science of ichthyology, the course will provide a solid foundation in anatomy, physiology, evolution, life history, and ecology and will prepare you well for careers in fisheries science, ichthyology, aquaculture, oceanography, or vertebrate biology.

Technical Assistance: If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email OSUHelpdesk2@oregonstate.edu or visit the [OSU Computer Helpdesk](https://www.oregonstate.edu/helpdesk) online. If you experience any errors or problems on Canvas, use the Canvas Help feature by clicking the Help icon on the far-left toolbar. Note that Canvas Help is a 24/7 service that will connect you with a real human and is remarkably excellent. I have seen them fix problems in ten minutes or less. They will respond much faster than your instructor will (particularly on the weekend) and can fix problems that your instructor cannot.

Learning Resources

Required Text:

The Diversity of Fishes: Biology, Evolution and Ecology, 2nd edition
Gene S. Helfman, Bruce B. Collette, Douglas E. Facey and Brian W. Bowen
2009, John Wiley and Sons

The Helfman et al. text is available as an electronic reserve item through the library free of charge. A link to the text is posted on Canvas.

Recommended Text:

Writing Papers in the Biological Sciences, 7th edition
Victoria E. McMillan, 2021, Bedford/St. Martin's

Either the printed or the electronic version of this book will do. This text will help you to format your writing project, particularly the references.

Phylogeny: Check on Canvas for a PDF version of the course phylogeny, as well as a document that explains what fishes fit into each of these taxonomic groups.

Canvas: The syllabus, readings, phylogeny, lecture slides and recordings, quizzes, discussion boards and other information are available on OSU's Canvas web page at <https://canvas.oregonstate.edu/>

Helpful Websites:

Dictionary of Ichthyology

Brian W. Coad and Don. E. McAllister

<http://briancoad.com/Dictionary/Complete%20Dictionary.htm>

The Dictionary of Ichthyology is a helpful online glossary of terms spanning the breadth of the field.

Oregon State Virtual Ichthyology Teaching Collection

<https://courses.ecampus.oregonstate.edu/fishes-collection/>

Developed for the Ecampus version of Systematics of Fishes, this resource contains more than 1000 photographs of preserved fishes from around the world, as well as information on their natural history.

Oregon State Ichthyology Collection

<http://ichthyology.oregonstate.edu>

The catalog of more than 200,000 pickled fishes in the basement of Nash Hall, including geographic data and images.

FishBase

<http://www.fishbase.org>

Fishbase is probably the most complete online clearinghouse of data on fish species, including scientific names, life history information and photographs. Be a little careful in using it, as there's no guarantee that a curator has verified that all the photos are correctly identified in any given taxon. That said, its accuracy is pretty good overall.

Evaluation of Student Performance

Intro Questionnaire	10 points
Skull Bone Exercise	10 points
Pre-discussion responses	30 points (3 x 10 points)
Quizzes	280 points (8 x 40 points, lowest dropped)
Midterm	120 points
Final Exam	250 points
Writing Assignment	300 points in several parts, plus 10 bonus

TOTAL **1000 points, plus 10 bonus**

Grading:

Earning at least the total number of points specified below will earn you the corresponding grade.

930	A
900	A-
870	B+
830	B
800	B-
770	C+
730	C
700	C-
670	D+
630	D
600	D-

Course Content

The table below lists the readings from the primary course textbook. Additional readings, supplements and videos appear in the weekly Canvas modules.

Readings should be completed before class if possible, and then reviewed before the quizzes and exams. You might benefit from reading chapter summaries first, then reading the chapter.

For three discussions, you will submit a short, graded response on the assigned reading materials no later than the start of that class. Submission is online through Canvas.

Day	Date	Topics and Due Dates	Readings (Helfman et al. if not otherwise specified)
Wed.	9/21	Course Introduction An Introduction to Fishes	Chapter 1
Fri.	9/23	Understanding and Using Phylogenies Major Groups of Fishes	Chapter 2 Chapter 17: 379-385
Mon.	09/26	Pre-discussion response due at start of class Fish Origins: The diversification and relationships of jawless and jawed fishes	Chapter 11: 169-178 Chapter 13: 231-241 Miyashita paper
Wed.	09/28	Fish Origins: The Tale of the Tail Fish Origins: Median and Paired Fins	Chapter 3: 33 -35 Chapter 11: 178-195 Chapter 13: 242-258
Fri.	09/30	Intro Questionnaire due at midnight Life in Fluids: Thrust and Drag	Chapter 8: 111-119 Chapter 18: 401-405 Chapter 18: 415-417
Mon.	10/03	Quiz 1 due at midnight Life in Fluids: Locomotion and Niche	Chapter 8: 111-119 (again) Webb paper
Wed.	10/05	Skin, Scales and Teeth	Chapter 3: 28-29, 36-39 Chapter 11: 197-200
Fri.	10/07	Skull coloring exercise due at start of class Muscles and Bones	Chapter 3: 23-25, 31-32 Chapter 4: 41-45 Lightboard on skull bones
Mon.	10/10	Quiz 2 due at midnight Skull Architecture and Evolution	Chapter 3: 25-31, 40 Chapter 11: 200-204 Lightboard on skull evolution
Wed.	10/12	Skull Function	Chapter 3: 30 Chapter 8: 119-128 Chapter 11: 195 – 197
Fri.	10/14	Predation	Chapter 19
Mon.	10/17	Quiz 3 due at midnight Defense	Chapter 20 Chapter 22: 488-490
Wed.	10/19	Respiration and Circulation (start)	Chapter 4: 45-48 Chapter 5

Fri.	10/21	Respiration and Circulation (finish) Writing Assignment Step #1 due at midnight	Chapter 5
Mon.	10/24	Quiz 4 due at midnight Buoyancy	Chapter 4: 50-52
Wed.	10/26	Pre-discussion response due at start of class Thermoregulation	Chapter 7: 91-100 Chapter 18: 405-414 Dahlke paper
Fri.	10/28	Venom and Bioluminescence	Chapter 3: 35-36 Chapter 18: 393-400
Mon.	10/31	MIDTERM	
Wed.	11/02	Osmoregulation	Chapter 7: 100-109
Fri.	11/04	Digestion and Excretion Nervous System	Chapter 4: 48-50, 54-56
Mon.	11/07	Quiz 5 due at midnight Vision Mechanoreception (start)	Chapter 6: 75-80, 84-87 Chapter 18: 417-420 Chapter 22: 477-483
Wed.	11/09	Mechanoreception (finish) Electroreception Paper draft due at midnight	Chapter 6: 80-84 Chapter 22: 483-485
Fri.	11/11	VETERANS DAY	
Mon.	11/14	Magnetoreception Chemoreception Quiz 6 due at midnight	Chapter 6: 87-90
Wed.	11/16	Reproductive Anatomy Reproductive Theory (beginning)	Chapter 4: 52-54 Chapter 21
Fri.	11/18	Review of partner's paper due at midnight Reproductive Theory (continued)	Chapter 17: 355-364 Chapter 21 Tinbergen paper
Mon	11/21	Pre-discussion response due at start of class Reproduction: Case Studies Quiz 7 due at Midnight	Readings and videos online on Canvas for discussion
Wed.	11/23	Early Life History	Chapter 9
Fri.	11/25	THANKSGIVING HOLIDAY	Gobble Gobble
Mon	11/28	Age, Development and Growth	Chapter 10 Chapter 24: 525-532
Wed.	11/30	Migration and Diadromy Last Day to Submit Proof of Writing Center Critique (optional, by midnight) Quiz 8 due at midnight	Chapter 23: All, but particularly 509-523 McDowell paper
Fri.	12/2	Conservation and the Future of Fishes Final writing assignment due at midnight	Chapter 26 Chapter 17: 385-389
Finals Week	To be determined	FINAL EXAM	Comprehensive

Assessments

Intro Questionnaire: On the Canvas site, you will find a short questionnaire that will help you practice the online quiz procedure. There are a few optional questions designed to let me get to know you a little better; you need not answer those if you really don't want to, but you must at least sign in and submit the questionnaire so that we can solve technical problems before you take the actual quizzes. If you encounter any technical difficulties, please let the HelpDesk (OSUHelpdesk2@oregonstate.edu) know immediately. You can also consult with Canvas support via chat available from the left panel. It is not the instructor's responsibility to solve technical problems. Everyone that fills out the questionnaire on or before Friday of the first full week of class will get full credit for the associated grade.

Skull Bone Exercise: The unit on anatomy includes a short exercise in which you will color, cut out and assemble the bones of a salmon skull. You'll earn ten points by completing the exercise and uploading a photo of your work.

Pre-discussion responses: Three times over the course of the term, we will discuss some assigned readings in detail. To help you prepare for these, you will submit a short pre-discussion response, due online no later than the start of that class session.

Weekly Quizzes: Starting at the end of the first full week of classes, on Friday afternoons before I leave the office, I will activate a quiz in Canvas that will cover the material from that week. You will have until the following Monday at the end of the day (midnight) to finish the quiz, which will consist of questions in multiple choice, multiple answer, true or false, fill-in-the blank and short answer formats. The quizzes are open book, but you will have only 90 minutes to complete each one once you begin. While you are encouraged to study for the quizzes in groups, you should complete the quiz on your own. Each quiz accounts for only a small portion of your final grade, and their purpose is to familiarize you with my testing style, learn the material and help prevent you from falling behind. I understand that technical difficulties arise, that you might need to be away for an entire weekend, that you might come down with an illness, etc. Therefore, your lowest quiz score will be dropped, no questions asked. This means that you can skip one quiz if you wish to.

The timer will be activated when you start the quiz in Canvas. The quiz will automatically end at the end of the allowed 90-minute window. Be sure that you save your answers regularly as you complete the quiz, particularly as you get close to the end of the hour. If you accidentally close the browser window while you are taking the quiz, you can log back into the quiz with no problems. Note that the timer will continue to countdown.

Also note that you can have more than one tab open in Canvas at a time, so you can have the quiz open in one tab and another part of the course website open in another.

The quiz has an autograder feature, but it doesn't work very well for the fill-in-the-blank style questions or the multiple answer questions, and not at all for short answer questions. Rest assured that we will review all responses to ensure that you get all the points that you have

earned before we release final quiz scores each week. If you have a red X from the autograder next to something that seems correct, it is likely that your phrasing doesn't match what we input to the grader, but that we have assigned you points manually. Please check the point totals before requesting a regrade.

Midterm: The midterm will consist primarily of multiple choice, multiple answer, true or false, fill-in-the-blank and short answer questions in formats very similar to what you've experienced on the weekly quizzes. The midterm is closed book and will occur in class. There is no quiz in the week of the midterm.

Final: The closed-book final will consist of multiple choice, multiple answer, true-or-false, fill-in-the blank and short answer questions, as well as a single longer essay question. The final is comprehensive but will slightly emphasize the last half of the class material.

Writing Assignment - Design a fish: Throughout the term, we will talk extensively about fish adaptations and the amazing ways that fishes manage to live in every watery habitat on earth. For example, we will learn how you can predict how a fish swims and hunts from its body and fin shape, why some fishes have evolved the amazing ability to regulate their body temperature or move between fresh and salt water, and how a species' lifespan and habitat influences its reproductive strategy. Your writing task this term will be to synthesize that information to create and describe a fish that doesn't exist, but could, and to explain how its anatomy, physiology and reproductive biology adapt it to life in its niche and habitat.

You'll complete this assignment in several parts, submitting first a short concept statement, then a full draft for review by one of your peers, and finally a full version. The final version will be at least five pages in length, will involve at least one figure, and should include at least five scientific references.

- 1) Write a one-page concept statement about your fish (50 points)
- 2) Submit a draft of your paper to your peer review partner and to me (50 points)
- 3) Review your partner's paper and submit the review to them and to me (50 points)
- 4) (Optional) Have the writing center critique a draft of your paper (10 extra credit points)
- 5) Submit your final assignment (150 points)

Due dates appear on the calendar. We will discuss the steps in class, and I will post handouts with more detail as the class progresses.

Course Policies

Participation: Success in this course depends critically on being an active learner and engaging fully in and out of lab. I expect you to attend class regularly, arrive on time, complete all assignments, discuss the answers to each week's questions with your partners and others in class, ask questions, and focus during each lab session. This means that cell phones should be silenced, and that except for emergencies, you should not be texting, emailing, Facebooking, Twittering, surfing the web, RateMyProfessoring, or hunting for Pokémon during class. I may ask you to leave class if I find you focused on topics outside of it.

Excused Absences and Extensions: Over the course of our ten weeks together we'll be covering a lot of ground, and it is important we work through the material in a roughly unified pace. While I ask that you adhere to these deadlines as much as possible, I also understand that life doesn't always fit easily into weekly modules. Emergencies large and small can crop up without warning, and sometimes important events conflict with deadlines. If your child wakes up sick and needs to go to the doctor on short notice, I want you to take care of their health before you attend to my assignment. If one of my exams falls during a major religious holiday that you observe, I will be happy to work with you on an accommodation. If your best friend's wedding, or a crucial internship opportunity conflict with of my deadlines, those too I can likely accommodate. In all these cases, I simply ask that you communicate with me as soon as it is practical and safe to do so, and **in advance of the deadline if at all possible**. Occasional extensions that are prearranged for good reasons are neither a burden nor a hardship. That said, I will be much less lenient if you miss an exam without warning, unless you are experiencing COVID-19 symptoms, have a positive COVID-19 diagnosis, or are otherwise dealing with a true emergency.

COVID-19 Policy: During this public health emergency we all have a shared responsibility to each other to take steps to reduce spread and transmission of COVID-19. This includes getting fully vaccinated as soon as you are eligible, following all OSU and public health authority guidance and regulations, and staying home if you are sick or have been in close contact with a known or suspected COVID-19 case. If you need to stay home due to illness or potential exposure, please contact me and I will work with you to facilitate your continued engagement with the course. For the updates from OSU on COVID-19 safety and mitigation measures, visit: <https://covid.oregonstate.edu/>

Policy Violations: Each member of the OSU community is responsible for holding themselves accountable to OSU policies and standards. Faculty are responsible for classroom management and may refer students to the Office of Student Conduct and Community Standards for further discipline if warranted.

Quarantine and Isolation: This class is scheduled to be offered face-to-face on campus. There may be unexpected changes. If health and safety concerns prevent us meeting in person, I will provide opportunities to interact with each other via Zoom. If you experience symptoms of COVID-19 please consult OSU Quarantine and Isolation guidelines to determine your next steps. If you are quarantining and unable to attend a class lecture, please review the recording.

If you are ill or caring for someone who is: I am here to support your success during these challenging times. Please reach out to me directly via email or Canvas message if you are concerned about your ability to engage in course activities while you are ill. You need not disclose private medical information or provide documentation of your illness. The Office of the Dean of Students can also assist you if you are navigating a range of extenuating life circumstances including but not limited to prolonged illness, hospitalization, financial concerns, etc. They can be reached via Zoom chat or audio Monday through Friday from 9 a.m. to 5 p.m. at beav.es/4qQ or by email at support.odos@oregonstate.edu.

TurnItIn: During steps two and five of the writing assignment, I will ask you to submit your work through Canvas to the TurnItIn plagiarism prevention service. Your assignment will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students. TurnItIn generates a report that highlights any potentially unoriginal text in your paper. Papers you submit through TurnItIn for this or any class will be added to the OSU TurnItIn database and may be checked against other OSU paper submissions. You will retain all rights to your written work.

Regrades: Requests for regrades must be submitted within a week of my returning a quiz, exam or assignment. After that, grades are final. Please indicate the reason for the regrade request in your message to me.

Incompletes: Incompletes will be granted on a case-by-case basis and only in extreme circumstances in which you have a documented legitimate (e.g., health-related or family emergency) excuse for not being able to take the final exam. You must have completed 70% of the course in order to request an incomplete. If you think that you will need to request an incomplete, please contact me with the details of your case as soon as possible. No incompletes will be granted post-hoc after the final exam has occurred.

Late Assignments: Late writing assignments will be marked down by 5% for every day (24-hour period or portion thereof) that they are late. Short extensions can be granted without penalty if disaster strikes, and if you talk with us promptly. **Quizzes, exams and pre-discussion responses cannot be submitted late without an approved extension.**

Communication and Civility: Over the course of our ten weeks together, we'll communicate frequently through discussion boards, emails, announcements, assignment comments and various other means. In all such communications, we should treat each other with consideration, dignity and mutual respect. That means welcoming and affirming the identities and contributions of everyone in the class, and ensuring that we work to value each other's perspectives, understand each other's thoughts, and build a community of mutually supportive learning.

You can help us establish such a civil and supportive community by:

- Introducing yourself on the icebreaker discussion board and letting the class know about your background, interests and goals.
- Letting us know your pronouns, and your name if that differs from that which Canvas displays.
- Reaching out via email or Canvas message if a personal or professional circumstance impedes your ability to succeed in this course, particularly if there's a chance that we might be able to help find a solution.
- Treating everyone with courtesy in your communication.
- Responding in a timely manner to messages.
- Avoiding any language that attacks or denigrates any aspect of another human's identity.
- Bringing any communications you believe to violate this class policy to the attention of your instructor.
- For our part, we pledge to uphold these same standards in our own communication with you, and to work to correct the issue if we somewhere fail to do so.

Other Communication-related mechanics:

- Please check the Announcements area and the course syllabus before you ask general course "housekeeping" questions (i.e. how do I submit assignment step 3?). If you don't see your answer there, then please post on the Q&A discussion board to request clarification.
- If the answer to your question would be relevant to everyone in the class, ask it by posting on the Canvas site, not via personal email.
- We will try to respond to all course related emails sent during the work-week within 48 hours. Response times may be longer over the weekend; believe it or not, we don't always work on Saturday! If more than 48 hours elapses and you have not received a response, please feel free to send a gentle reminder.
- We aim to have all work graded within one week of submission, with the exception of the various steps of the writing assignment, which each may take two weeks to grade.
- Remember that online threaded discussions are public messages, and all writings in this area will be viewable by the entire class. If you prefer that a communication to be private, send it by email, and be sure to identify yourself and the class.
- All communications with others in the course need to be composed with fairness, honesty and tact.

Discussion Boards: If you have questions regarding general course logistics or the course material, please post your question to one of the discussion boards that I've set up on Canvas. This will allow me to respond where the whole class can benefit from the answer. Personal concerns, extension requests, etc. can of course come through email.

Fish Names and Vocabulary: There are a lot of names and scientific terms in this course that will be novel to you, and you are responsible for learning these as we go. Though this is not specifically a course on fish systematics, you do need to understand the composition of major groups of fishes (e.g. Teleostei, Chondrichthyes) as covered in lectures and the phylogeny handout. You do not need to memorize fish names at the level of family, genus and species. Fish names (common or scientific) if relevant will usually be in the question on exams, and you are allowed to use the phylogeny handout during exams.

University and Departmental Policies:

Academic Calendar: All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>

Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <https://ds.oregonstate.edu/>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Expectations for Student Conduct: In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity and respect. Disruption of teaching, administration, research, and other institutional activities is prohibited by Oregon Administrative Rule 576-015-0015 (1) and (2) and is subject to sanctions under university policies, [OSU Office of Student Conduct](#).

Therefore, we expect you to conduct yourself in the course (e.g., on discussion boards, email postings) in compliance with the official [Code of Conduct](#) available at <https://beav.es/codeofconduct>. Treat all others with the same respect that you would want to be afforded yourself. Disrespectful behavior to others (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors in the course (such as persistent and unreasonable demands for time and attention both in and out of the classroom) is unacceptable and can result in sanctions as defined by Oregon Administrative Rules Division 015 Student Conduct Regulations.

Naturally, you have a right to expect the same civility and respect of us, your instructors, that we expect of you, our students!

Student Bill of Rights: OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus: <https://asosu.oregonstate.edu/advocacy/rights>

Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Academic Dishonesty: The following information is from the OSU Office of Student Conduct web page:

https://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/edited_code_of_student_conduct.pdf

Academic Misconduct. Any action that misrepresents a student or group's work, knowledge, or achievement, provides a potential or actual inequitable advantage, or compromises the integrity of the educational process. Prohibited behaviors include, but are not limited to doing or attempting the following actions:

- a) **Cheating.** Unauthorized assistance, or access to or use of unauthorized materials, information, tools, or study aids. Examples include, but are not limited to, unauthorized collaboration or copying on a test or assignment, using prohibited materials and texts, unapproved use of cell phones, internet, or other electronic devices, etc.
- b) **Plagiarism.** Representing the words or ideas of another person or presenting someone else's words, data, expressed ideas, or artistry as one's own. Examples include, but are not limited to, presenting someone else's opinions and theories as one's own, using another person's work or words (including unpublished material) without appropriate source documentation or citation, working jointly on a project and then submitting it as one's own, etc.
- c) **Falsification.** Fabrication or invention of any information. Examples include, but are not limited to, falsifying research, inventing or falsely altering data, citing fictitious references, falsely recording or reporting attendance, hours, or engagement in activities such as internships, externships, field experiences, clinical activities, etc.
- d) **Assisting.** Any action that helps another engage in academic misconduct. Examples include, but are not limited to, providing materials or assistance without approval, altering someone's work, grades or academic records, taking a test/doing an assignment for someone else, compelling acquisition, selling, bribing, paying or accepting payment for academic work or assistance that contributes to academic misconduct, etc.
- e) **Tampering.** Interfering with an instructor's evaluation of work by altering materials or documents, tampering with evaluation tools, or other means of interfering.
- f) **Multiple submissions of work.** Using or submitting work completed for another or previous class or requirement, without appropriate disclosure, citation, and instructor approval.
- g) **Unauthorized recording and use.** Recording and/or dissemination of instructional content without the express permission of the instructor(s), or an approved accommodation coordinated via Disability Access Services.

Cheating or plagiarism by student is subject to the [disciplinary process found at the Student Conduct Regulations website](#):

At a minimum, academic misconduct will result in a grade of zero for the assignment or exam and may result in failure of the course.

Student Learning Experience Survey: During Fall, Winter, and Spring term the online Student Learning Experience surveys open to students the Wednesday of week 9 and close the Sunday before Finals Week. Students will receive notification, instructions, and the link through their ONID email. They may also log into the survey via MyOregonState or directly at <https://beav.es/Student-Learning-Survey>. Survey results are extremely important and are used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity of written comments) and are not available to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.

Acknowledgments:

Much of the organization and ideas reflected in this syllabus are based on courses in comparative anatomy, biodiversity, systematics, or ichthyology taught by my own mentors including Barry Chernoff, Michael LaBarbera, Amy McCune, Mark Westneat, Bruce Collette and Doug Markle.