

Course Meeting Time and Location:

Lecture: Dairy Microbiology Rm100 (SDM 100), Tuesday & Thursday, 11:00-11:50 A.M.

Labs: Northern Plains Biostress Laboratory Rm 179 (SNP 179)

S01 Mondays 3:00 P.M. – 5:50 P.M. (Dr. Katie Bertrand)

S02 Tuesdays 3:00 P.M. – 5:50 P.M. (Justin VanDeHey: justin.vandehay@sdstate.edu)

S03 Wednesdays 3:00 P.M. – 5:50 P.M. (Luke Schultz: luke.schultz@sdstate.edu)

Instructor's Contact Information: Dr. Katie Bertrand, SNP 142A, Telephone: 688-6121, E-mail: D2L course e-mail

Office Hours: Monday & Wednesday 9:00 A.M. – 10:00 A.M. and by appointment

Course Description: Characteristics and relationships of fishes; adaptations, behavior, ecology, evolution, systematics, and zoogeography of fishes; and, identification and life histories of fishes. Ichthyology will familiarize you with the systematics, anatomy, and distribution of fishes. We will begin with an overview of the global diversity and conservation status of fishes and an introduction to the field of ichthyology. Then, we will take an in-depth look at fish structures and functions. Next, we will review systematics, genetics, speciation, evolution, and zoogeography as they relate to ichthyology. Finally, we will examine the evolutionary relationships among major taxa groups and North American species, highlighting the fascinating variation.

Prerequisites / Co-requisites:

There are no formal prerequisites for this course; however, WL 367L (Ichthyology lab) is a co-requisite. Students must be enrolled in both WL 367 and WL 367L during the same semester. Technology skills related to use of internet resources, primarily browsers (D2L) and Adobe Acrobat Reader, are required for this course. The recommended browser is the most current version of Microsoft Internet Explorer. Basic technology (e.g., computer system, network, and software) requirements and assistance are provided at <http://learn.sdstate.edu/online/require.htm>. Additional information may be obtained by contacting SDSU support services at (605) 688-6776, or SDSU.SupportDesk@sdstate.edu.

Instructional Method: The primary mode of instruction will be lecture (accompanied by visual aids) and case studies and other exercises. Topic notes and/or material for exercises are provided on D2L in advance. Audiovisual presentations are provided for each lecture to facilitate comprehension of selected topics. The best approach for lectures is to download and print off lecture material (.pdf files of audiovisual slides, etc.) before class and bring these materials to class for note taking, etc. **NOTE: THE INSTRUCTOR RESERVES THE RIGHT TO INCORPORATE POP QUIZZES, BONUS QUIZZES, OR OTHER UNANNOUNCED ASSIGNMENTS.**

Course Goals and Outcomes:

1. Based on an assessment of a fish's form and structure, students will be able to describe hypothesized characteristics of that fish's ecological niche.
2. Students will be able to predict how fish will respond (physiologically, behaviorally, structurally, and ecologically) to different environments.
3. Presented with a major group of fishes, students will be able to explain the evolutionary relationship of that group to all other groups of fishes, and students will be able to analyze the characteristics of the group that justify its hypothesized location in the evolutionary tree.
4. After choosing a topic that aligns with their interests, students will learn to effectively search the scientific literature using electronic databases such as Web of Science, organize thoughts, follow formal conventions in the drafting of a manuscript, provide constructive peer review, revise their writing according to instructor and peer feedback.

Course Web Site: Online materials (i.e., syllabus, lecture notes, exam results, and resource links) are available at <http://d2l.sdstate.edu/>. You will utilize D2L extensively, and I suggest you become familiar with this program early in the semester and ask for assistance if you have any questions. The D2L homepage above has very good instructions for first time users.

Course Requirements: We cannot possibly cover every detail of Ichthyology in a single semester. Instead, we will read extensively from one of the leading texts in the field, and student responses to questions posed during class will steer in-depth discussions on select topics. **Thus, students are required to complete all assigned textbook readings prior to each class session. Students are required to complete the 3 scheduled lecture exams and the 3 scheduled lab exams during the semester, but the final lecture exam will be optional. Students are required to complete the research paper. Additional pop quizzes, bonus quizzes, and/or other unannounced assignments may also be offered at the instructor's discretion.** Students are strongly encouraged to attend all class meetings; however, due to large class size, attendance will not be monitored.

Required Text: Moyle, Peter B., and Joseph J. Cech. 2004. Fishes: An introduction to ichthyology, 5th edition. Pearson – Benjamin Cummings, San Francisco. (Available through the SDSU bookstore, <http://www.sdstatebookstore.com> or 1-800-985-8771)

Eddy, S. and J. C. Underhill. How to know the freshwater fishes, 3rd edition. Wm. C. Brown, Iowa.

Class Schedule: NOTE: Highlighted dates refer to exams.

Date	Theme	Topic	Reading	Assignment	
9/1	Structure & Form	Syllabus			
9/3		Individual work session			
9/8		Introduction and History of Ichthyology	Ch. 1	Flash Cards	
9/10		Form & Movement Last day to drop/add & adjust fees w/o "W"	Ch. 2		
9/15		Respiration	Ch. 3	Paper Topic	
9/17		Circulation	Ch. 4		
9/22		Homeostasis	Ch. 5-6		
9/24		Feeding, Growth, Sensory Perception	Ch. 7-8 & 10		
9/29			EXAM 1		
10/1		The Fishes I	Systematics	Ch. 12	
10/6	Early evolution; Jaw suspension		Ch. 13	Annotated Bibliography	
10/8	Zoogeography		Ch. 25 & 26		
10/13	Hagfishes & Lampreys		Ch. 14		
10/15	Sharks, Rays, and Chimeras		Ch. 15		
10/20	Relict Bony Fishes		Ch. 16	Rough Draft	
10/22	Bonytongues, Eels, and Herrings		Ch. 17		
10/27	Minnnows, Characins, and Catfishes		Ch. 18		
10/29		EXAM 2			
11/3	The Fishes II	Smelt, Salmon, and Pike	Ch. 19		
11/5		Anglerfish, Barracudinas, Cods, and Dragonfishes	Ch 20	Peer Reviews	
11/10		Veterans' day Holiday	Say "thank you" to a vet!		
11/12		Mullets, Silversides, Flying Fish, and Killifish	Ch. 21		
11/17		Opahs, Squirrelfish, Dories, Pipefish, and Sculpins	Ch. 22		
11/19		Perciformes: Snooks to Snakeheads	Ch. 23		
11/24		Flounders, Puffers, and Molas	Ch. 24		
11/26		Thanksgiving	Be thankful!		
12/1		EXAM 3			
12/3	Ecology	Fish Ecology	Ch. 27		
12/8		Life History Strategies	handout		
12/10		Conservation	Ch. 37	Final Draft	
12/17		Final Exam (12:00 – 1:40PM)			

Assessment:

The final course grade is composed of the following elements:

Title	Due date	Points
Flash Cards	9/8	50
Paper Topic	9/15	10
Lecture EXAM 1	9/29	100
Lab Completions	each of 7 lab periods identifying fish	70
Annotated Bibliography	10/6	20
Lab MIDTERM	10/19-10/21	100
Rough Draft	10/20	20
Lecture EXAM 2	10/29	100
Peer Reviews	11/5	25
Lecture EXAM 3	12/1	100
Lab FINAL	12/7-12/9	100
Final Draft	12/10	50
Lecture FINAL (optional-not additive)	12/17	100

Total points available:

Category	Points
Writing assignment	125
Lecture exams (3 required, 100 points each)	300
Quizzes	To Be Determined
Lab exams (2 required, 100 points each)	200
Lab completions (7 assessments, 10 points each)	70
Flash cards	50
Total	At least 745

Grades will be assigned according to the standard scoring system. **Only** by attaining the following points/percentages can you be assured of receiving a desired grade. **NOTE: the points below will change if quizzes are utilized during the semester.**

Grade	Percentage	Points
A	90–100%	671
B	80–89%	596-670
C	70-79%	522-595
D	60-69%	447-521
F	<60%	<447

Assessment descriptions:

Writing assignment: 125 total points. See syllabus supplement for more details. This assignment will be completed in phases, and I assigned a high total point value to this assignment to encourage you to think critically about your topic. You will have a lot of freedom to develop your ideas and will not be graded “right or wrong” in your ideas. Creative and thorough work will be rewarded most highly. However, your papers will be graded for how well you support your ideas and compose your writing (editing and grammar). To earn high grades on the research paper assignments, your writing must be organized and your editing must address my suggestions and those from your peers. I will return comments on your rough draft at the same time that your peer reviews will be returned.

Unannounced (i.e., pop) quizzes and bonus assignments:

I will likely give quizzes periodically throughout the semester. These will be given in class without prior warning, and they may cover information from reading, class topics, or lab.

Evaluation Procedures:

Students will be assessed with in-class quizzes and exams and take-home assignments. Exam format will consist of short answer questions. Exam content will include information from readings and class topics. A total of 300 points can be earned on exams during the semester. The three highest exam scores will be used to determine the final grade. The final exam will be optional, and it will be cumulative.

Make-up lecture exams are **discouraged**, but will be given on a scheduled make-up date. However, to be eligible to take the make-up exam you must contact me (688-4777) or the department secretary (688-6121) **before** the scheduled in-class exam. The make-up exam format will be 100% essay.

Points will be earned during each lab session when we are identifying fish. If you miss your lab session, you will miss the opportunity to earn the daily points, unless you attend a different session during the week. However, you must notify your

regular lab instructor and the instructor of the session you wish to join. Lab exams will be practical exams. Stations will be set up throughout the lab room, and students will have a short time at each station to answer a question about a fish or an ichthyology topic. Students will rotate through each station in the room, until all students have had the opportunity to answer each question. **Because of the work involved with setting up a practical exam, make-ups will not be allowed.** If a student has an excused absence on the day of a lab exam, that student will have the option to either take their exam with a later lab section in the week, or receive a score that equals the average of their other two lab exam scores.

Late work will be penalized. You will earn up to 50% of the total possible points for each day an assignment (lab or lecture) is late. In other words, if your assignment is 2+ days late, you will receive valuable instructor feedback on your work but a zero for your score.

ADA and Academic Dishonesty Policies

Students are entitled to 'reasonable accommodations' under the provisions of the *Americans with Disabilities Act*. Those in need of such accommodation should notify the instructor and make appropriate arrangements with the SDSU Office of Disabilities Services (110 West Hall, 688-4504 or 688-4032 TTD).

Any form of academic dishonesty will not be tolerated. You are subject to the academic dishonesty policy in the following section.

Department of Wildlife and Fisheries Sciences Academic Dishonesty Policy (Revised Nov. 2000)

The Department and the University have taken a strong and clear stand regarding academic dishonesty. We believe that it is unethical and unprofessional to present work done by others in a manner indicating that the student/s is/are presenting material as his/her original ideas or work; such activity is academic dishonesty. Plagiarizing or knowingly assisting others in plagiarizing on tests, quizzes, problems, assignments, research papers, theses, dissertations, or other academic activities is unacceptable behavior. All academic work completed by students is expected to be the original work of that individual student, unless permission is specifically granted beforehand by the faculty member for some form of team effort or other format. If students are unsure if a particular activity may be regarded as a form of academic dishonesty they should consult the faculty member before undertaking such an activity.

The University has a policy on academic honesty, procedures for academic grade and dishonesty appeals, and sanctions for such activities (see Student Code). The Student Code has **different** procedures for undergraduate and graduate students.

The Department policy described in this handout is intended to attempt to address perceived academic dishonesty violations between the faculty member/s and student/s **before** Student Code procedures are implemented. This is done because under Student Code procedures the **minimum** penalty for academic dishonesty is Disciplinary Probation. These added Department steps (Steps 1, 2, and 3 of the Undergraduate Student and Graduate Student Procedures) should not be construed as an attempt to circumvent the Student Code system; both students and/or the faculty member have the option to go directly into that system. The Department procedures portion of this policy are only available to a student one time; any second perceived offense will immediately follow the Student Code procedures.

Undergraduate Student Procedure

1. When a student/s is/are determined to have broken the Academic Dishonesty Policy, he/she will be notified **verbally** by the faculty member involved as to the problem and sanction selected. This is similar to procedures 02:02:01:03 and 02:02:01:04 in the Student Code. The faculty member will do this immediately after the perceived violation occurs. Sanction options available to the faculty member are as follows:
 - a. provide the student/s a grade of zero or some other score on the test, quiz, problem, assignment, or other academic endeavor involved;
 - b. provide the student/s a grade of "F" in the course;
 - c. request that the student/s withdraw from the course;
 - d. request that the student/s change the grading for the course to an "audit"; or
 - e. immediately refer the case to the Student Code procedures.The sanction selected is at the discretion of the faculty member, based on the seriousness of the situation.
2. If the student/s agrees to the sanction proposed by the faculty member the process is completed.
3. If the student/s does not agree to the sanction proposed by the faculty member, he/she has the right to appeal the faculty member's decision. This **Informal Phase Appeal** should be made directly (**both verbally and in writing**) to the faculty member involved within 5 class days of notification or within 7 calendar days of notification, if the incident is at the end of the semester.

The faculty member may then modify or leave unchanged the sanction proposed in step 1. A copy of the student's **written appeal** and the faculty member's **written response** will be sent to the Department Head so that a confidential record to protect the student/s and the faculty member is established. The student/s written appeal and faculty member written response will be secured in the student's file until graduation or he/she leaves the program; if no further perceived violations have occurred these materials will be purged from the student's file.

4. If the student/s is/are still dissatisfied with the decision he/she can appeal to the Department Head. This **Informal Phase Appeal** should be made **verbally**. The Department Head will utilize this verbal appeal and the written student appeal and faculty written response described in step 3 to reach a decision. (These are steps 02:02:01:05, 02:02:01:06, and 02:02:01:07 in the **Informal Phase Appeal** process described in the Student Code).
 5. If the student/s and faculty member agree with the Department Head's decision, the process is completed. Up to this point, no one other than the student/s, faculty member, and Department Head has been made aware of the situation.
 6. If the student/s or faculty member is/are dissatisfied with the Department Head's decision they can enter the **Formal Phase** of the Student Code process (Student Code 02:02:02). It is the responsibility of the faculty member and student/s to be aware of the procedures and penalties involved.
- ¹The student's advisor **may** be included because items other than class work could be involved.

Freedom in learning

Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Student who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should first contact the instructor of the course to initiate a review of the evaluation. If the student remains unsatisfied, the student may contact the department head and/ or dean of the college which offers the class to initiate a review of the evaluation.