Ichthyology - BIOL 4432/5432
Department of Life Sciences
Fall 2017

A. COURSE INFORMATION

Course number/section: BIOL 4432/5432
Class meeting time: Lecture 11:00 – 12:15 TR, Lab 2:00 – 4:50pm, 5:00 – 7:50pm T
Class location: Lecture CI-107, Lab ECMS-114
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Dr J Derek Hogan
Office location: HRI 102
Office hours: 1:30 – 4:00 R
Telephone: 825-5883
e-mail: james.hogan@tamucc.edu
Appointments: Upon request when available

Instructor: Dr David S Portnoy
Office location: HRI 213D
Office hours: 1:30 – 4:00 T
Telephone: 825-2859
e-mail: david.portnoy@tamucc.edu
Appointments: Upon request when available

C. COURSE DESCRIPTION

Catalog Course Description
Fish are fascinating animals and phenomenally diverse. They occur in both fresh and saltwater habitats and inhabit all parts of the globe. Together we will learn about the biology, ecology, systematics and evolution of fishes in a broad global context. Prerequisite: A strong background in zoology will be useful for this course, as such BIOL 3414 is a prerequisite, failing that formal consent of instructor may be given. 4 sem. hrs. (3:3)

D. PREREQUISITES AND COREQUISITES

Prerequisites
BIOL 3414 and SMTE 0091 OR formal consent of instructor

Corequisites
None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

1
Required or Recommended Textbook(s)
- Merryman, Rainer, McKee & Murdy. 2012. McKee “key” (2nd ed.) Available for free at: http://texas-seagrant.tamu.edu/WhatWeDo/online%20publications/FishKey/SaltWaterKey020813sm.pdf REQUIRED.
- McEachran & Fechhelm. 2005. Fishes of the Gulf of Mexico (required but there is a copy in the lab)

Optional Textbook(s) or Other References.

Supplies
None

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:
1. Demonstrate an understanding of the basic anatomy and physiology of fishes.
2. Demonstrate and understanding of the form, function and diversity of fishes globally
3. Exhibit knowledge of the evolutionary relationships between groups of fishes
4. Demonstrate an understanding of the biogeography of fishes globally
5. Demonstrate an ability to identify common species in Texas and beyond our area

G. INSTRUCTIONAL METHODS AND ACTIVITIES
This course will be a combination of lecture section which will include traditional lecture, discussion, in class demonstrations (through video). It will also include a
laboratory section that will further enforce concepts from class using field trips and hands-on learning experiences.

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>15%</td>
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<tr>
<td>Exam 2</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
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<tr>
<td>Lab Practical</td>
<td>16%</td>
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<tr>
<td>Lab Attendance/Participation</td>
<td>4%</td>
</tr>
<tr>
<td>Species Photo Journal</td>
<td>5%</td>
</tr>
<tr>
<td>Fish Osteology Project</td>
<td>8%</td>
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<tr>
<td>Weekly Lab Quizzes</td>
<td>7%</td>
</tr>
</tbody>
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I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>29-Aug</td>
<td>Course Introduction</td>
<td>Dave/Derek</td>
</tr>
<tr>
<td>31-Aug</td>
<td>Skeleton Skin Scales</td>
<td>Dave</td>
</tr>
<tr>
<td>5-Sep</td>
<td>Neurosensory Systems</td>
<td>Dave</td>
</tr>
<tr>
<td>7-Sep</td>
<td>Respiration and Circulation</td>
<td>Derek</td>
</tr>
<tr>
<td>12-Sep</td>
<td>Metabolism, Mineral Balance &amp; Thermoregulation</td>
<td>Derek</td>
</tr>
<tr>
<td>14-Sep</td>
<td>Buoyancy &amp; Locomotion</td>
<td>Derek</td>
</tr>
<tr>
<td>19-Sep</td>
<td>Reproductive Biology &amp; Development</td>
<td>Dave</td>
</tr>
<tr>
<td>21-Sep</td>
<td>Open Date</td>
<td></td>
</tr>
<tr>
<td>26-Sep</td>
<td>Exam 1</td>
<td></td>
</tr>
<tr>
<td>28-Sep</td>
<td>Intro to Ichthyology and Systematics</td>
<td>Derek</td>
</tr>
<tr>
<td>3-Oct</td>
<td>Systematics I: Evolution of Fishes: Early fishes Agnatha and Early Gnathostomes</td>
<td>Derek</td>
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<tr>
<td>5-Oct</td>
<td>Systematics II: Chondrichthys</td>
<td>Dave</td>
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</tbody>
</table>
### Systematics III: Bony Fishes I, Ancient Lineages
- Sarcopterygii Through Neopterygians
  - Dave

### Systematics IV: Bony Fishes II, Osteoglossomorpha, Elopomorpha, Ostarioclupeomorpha
  - Derek

### Systematics V: Bony Fishes III Euteleostei – Protacanthopterygii – Paracanthopterygii
  - Dave

### Systematics VI: Bony Fishes IV, Euteleostei - Acanthopterygii – Mugiliformes-Beryciformes
  - Dave

### Systematics VII Euteleostei - Acanthopterygii-Scorpaeniformes – Tetraodontiformes
  - Dave

### Open Date
- 26-Oct

### Exam 2
- 31-Oct

### Introduction to Zoogeography of Fishes
- 2-Nov

### Marine Fishes of the Gulf of Mexico
- 7-Nov

### Freshwater fishes of Texas
- 9-Nov

### Polar, Temperate Marine Fishes
- 14-Nov

### Semitropical, Tropical Marine Fishes
- 16-Nov

### Freshwater Fishes
- 21-Nov

### Thanksgiving
- 23-Nov

### Deep Sea Fishes, Cave Fishes and Other Extreme Environments
- 28-Nov

### Grad Student Osteology Projects
- 30-Nov

### Exam Review
- 5-Dec

### Final Exam – 11am – 1:30pm room CS-115
- 14-Dec

**Note:** Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

#### COURSE POLICIES

**Attendance/Tardiness**
Attendance is not taken but participation is graded and students are tested on materials presented in class. Therefore, both tardiness and lack of attendance are likely to strongly negatively impact grades.

**Late Work and Make-up Exams**
A note is required to excuse students from all graded in class work such as exams, paper
discussions and field trips. Students will be given a chance to make-up the work but it must be done in a timely manner.

**Extra Credit**
Extra credit may be available as bonus question on exams at the instructors’ discretion.

**Cell Phone Use**
Please refrain from using cell phones in class, this include texting, tweeting, posting, Pokemon Go or any other such shenanigans

**Laptop (Tablet) Use**
Laptop use in class is permitted as long as the student is using it to facilitate the learning process. Appropriate uses include; taking notes, looking up materials during discussion and looking at relevant papers. Inappropriate uses include; checking email, looking at Facebook and playing Hello Kitty Island Adventure. If a student continually abuses the privilege of using a laptop in class they will be asked not to use it any more.

**Food in Class**
Eating in class is not prohibited unless it proves disruptive.

**Missed Exam**
A note is required to excuse students from all graded in class work such as exams. Students will be given a chance to make-up the work but it must be done in a timely manner.

**Participation**
Participation is required in lab and field trip activities.

### K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit
from the instructional program may be considered a breach of the peace and is subject to
disciplinary sanction outlined in article VII of the Student Code of Conduct. Students
engaging in unacceptable behavior may be instructed to leave the classroom. This
prohibition applies to all instructional forums, including classrooms, electronic
classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents
the population of the state. Our goal is to provide you with a high quality educational
experience that is free from repression. You are responsible for following the rules of the
University, city, state and federal government. We expect that you will behave in a
manner that is dignified, respectful and courteous to all people, regardless of sex,
ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that
infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However,
events can sometimes occur that make dropping a course necessary or wise. *Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.* Should dropping the course be the best course of action,
you must initiate the process to drop the course by going to the Student Services
Center and filling out a course drop form. Just stopping attendance and participation
**WILL NOT** automatically result in your being dropped from the class. Please
consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the
last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a
student who believes that he or she has not been held to appropriate academic standards
as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading,
may appeal the final grade given in the course. The burden of proof is upon the student
to demonstrate the appropriateness of the appeal. A student with a complaint about a grade
is encouraged to first discuss the matter with the instructor. For complete details,
including the responsibilities of the parties involved in the process and the number of
days allowed for completing the steps in the process, see University Procedure
13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible
through the University Rules website at
[http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science
and Engineering Grade Appeals webpage at
[http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the
grade appeal process, students may contact the chair or director of the appropriate
department or school, the Office of the College of Science and Engineering Dean, or the
Office of the Provost.

- **Disability Services**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.