BIOL 2371.002 - Principals of Evolution  
Department of Life Sciences  
Fall 2018

A. COURSE INFORMATION
   Course number/section: BIOL 2371.002  
   Class meeting time: M 4:20 - 6:50PM  
   Class location: OCNR-132  
   Course Website: https://bb9.tamucc.edu

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

C. COURSE DESCRIPTION
   Catalog Course Description  
An overview of the structure and function of organisms in adapting to the environment.  
Provides a foundation for molecular, cellular, and organismal studies in the biological sciences.  

   Extended Course Description  
Principals of Evolution - BIOL 2371 is a lower division lecture course that examines the foundations of evolutionary thought, explores the molecular mechanisms through which evolution occurs, presents a broad array of evidence supporting the theory of evolution in the form of scientific hypothesis testing, and explores the evolution of taxonomic diversity.

D. PREREQUISITES AND COREQUISITES
   Prerequisites  
   BIOL 1407 pre-requisite required

   Corequisites  
   none

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
   Required Textbook(s)
Get the Textbook and follow along with lectures. Much of the lecture material and examples used in class are found in this book. This is one of the few classes where having the book will
REALLY benefit you. You will probably go up a full grade if you read along in the book before lecture and study from the book along with lecture materials before tests.

Optional Textbook(s) or Other References
Additional reading materials may be provided through Blackboard.

Supplies
Download Kahoot! App. In classroom quizzes and groups exercises will be administered through Kahoot! Its FREE!!! **You need to get this in order to get grades for in class assignments and quizzes.**

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.

Upon completion of this course students will be expected to:

*Increased his or her knowledge and understanding of scientific content and concept, and be able to:*

1. Explain the historical, philosophical and scientific development of the modern evolutionary theory.
2. Describe how character traits are encoded and inherited.
3. Discuss how random genetic processes may produce novel character traits.
4. Describe the genetic and molecular underpinnings of evolution by natural selection and genetic drift (neutral theory).
5. Explain how quantitative traits can be inherited through Mendelian genetics.
6. Define adaptive character traits and explain how they evolve.
7. Explain the evolution of character traits that are not “physical”: e.g., sexual reproduction, life history characteristics, and behavior.
8. Describe various concepts of “species,” and explain how evolution produces new species.
9. Explain how evolution has shaped organismal diversity (e.g., coevolution, taxonomic groups above the species level).
10. Discuss the strengths and weaknesses of using character traits to reconstruct evolutionary
relationships.
11. Use heritable information encoded in DNA to estimate evolutionary history.
12. Describe, employ, and evaluate mathematical models of evolutionary principles.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The student learning outcomes in section F will be achieved through attending lectures, completing chapter reading assignments and participation in class discussions.

H. MAJOR COURSE REQUIREMENTS AND GRADING

The student grades will be assessed through tests and examinations, and in class assignment and quizzes administered during lecture.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Test I</td>
<td>20</td>
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<tr>
<td>Test II</td>
<td>20</td>
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<tr>
<td>Test III</td>
<td>20</td>
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<tr>
<td>Cumulative Final</td>
<td>20</td>
</tr>
<tr>
<td>Assignments/Quizzes</td>
<td>20</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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GRADING

Exams: There will be a total of four (4) written exams. Exams may be composed of any, or all, of the following: multiple choice, matching, fill in the blank, problem solving and short essay. The tests are designed to test your understanding of the concepts discussed in class and not simply an ability to regurgitate facts. The first three examinations are sequential (i.e., each examination covers material from one specific section of the course). The final exam is a comprehensive exam (i.e., covers material from the entire course) and is redemptive (i.e., it can count as nothing; it can replace a single lecture examination; or it can be your entire lecture grade). Thus, the exam portion of your grade may come from:

1) the mean of the three (3) highest examinations, OR
2) the final examination grade alone.

Your grade(s) for the 4 exams are determined by the highest score of the above options and will be determined by professor Hogan (i.e., no need to choose an option, I will choose whichever results in the highest grade for you).

Participation/Quizzes: Class participation, assignments, and quizzes will be given periodically during each lecture. Quizzes/Assignments will be administered using the Free App Kahoot! (available for iOS and Android devices). Students must download this app prior to coming to class, students can also submit answers from their computers by going to https://kahoot.it/ if you don’t have a smart phone or tablet. Dr. Hogan will give students a “Game PIN” before the start of each quiz/assignment. Students must enter their FULL first and last names as their “nickname”. Students must answer the question(s) in the time allotted to have their Assignments/Quizzes grade
recorded for that lecture. Points will be given for participation, not on performance, so you will get full marks just for filling out the Kahoot! Quiz.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Reading</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>27-Aug</td>
<td>ZE: Ch1, Ch2</td>
<td>• What is evolution?</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>• The evolution of evolutionary thought</td>
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<td>2</td>
<td>3-Sep</td>
<td></td>
<td>LABOUR DAY NO CLASS</td>
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<tr>
<td>3</td>
<td>10-Sep</td>
<td>ZE: Ch2, Ch3</td>
<td>• The evolution of evolutionary thought continued</td>
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<td></td>
<td>4</td>
<td>ZE: Ch4</td>
<td>• Fossil evidence of evolution</td>
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<tr>
<td>5</td>
<td>24-Sep</td>
<td>ZE: Ch5, Ch6</td>
<td>SECTION I TEST</td>
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<td>• The nature of heritable information</td>
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<td>• The neutral theory of molecular evolution</td>
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<tr>
<td>6</td>
<td>1-Oct</td>
<td>ZE: Ch6</td>
<td>• Genetics and evolution via natural selection</td>
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<td>• Inbreeding &amp; Population subdivision</td>
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<tr>
<td>7</td>
<td>8-Oct</td>
<td>ZE: Ch7</td>
<td>• Quantitative traits and evolution of phenotypes</td>
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<tr>
<td>8</td>
<td>15-Oct</td>
<td>ZE: Ch8</td>
<td>• Evidence of evolution via natural selection</td>
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<td>9</td>
<td>22-Oct</td>
<td>ZE: Ch10</td>
<td>SECTION II TEST</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Adaptation</td>
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<tr>
<td>10</td>
<td>29-Oct</td>
<td>ZE: Ch10, Ch11</td>
<td>Adaptation continued</td>
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<td>• Sex viewed through and evolutionary lens</td>
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<tr>
<td>11</td>
<td>5-Nov</td>
<td>ZE: Ch12, Ch13</td>
<td>Evolution of life history</td>
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<td></td>
<td></td>
<td></td>
<td>• The Origin of Species</td>
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<tr>
<td>12</td>
<td>12-Nov</td>
<td>ZE: Ch13, Ch15</td>
<td>The Origin of Species continued</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Coevolution</td>
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<tr>
<td>13</td>
<td>19-Nov</td>
<td>ZE: Ch 16</td>
<td>SECTION III TEST</td>
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<td>Evolution of Behaviour</td>
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<tr>
<td>14</td>
<td>26-Nov</td>
<td>ZE: Ch16, Ch14</td>
<td>Evolution of Behaviour continued</td>
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<td></td>
<td>3-Dec</td>
<td></td>
<td>Macroevolution</td>
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<tr>
<td>16</td>
<td>10-Dec</td>
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<td>Comprehensive Final Exam: 4:20pm – 7:00pm</td>
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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.

J. COURSE POLICIES
**Attendance/Tardiness**
Missing lecture will have to be for an approved reason. Dr. Hogan will have to be informed at least 24 hours prior to missing class and Dr. Hogan will have to approve the absence otherwise grades will be lost. If an emergency occurs and 24 hours’ notice is not possible, a discussion with Dr. Hogan will be required (afterwards) and an official note will be required. **No more than 2 excused absences** will be allowed for the semester unless you have spoken to Dr. Hogan to get a special exemption (for example, for varsity sports or other university business).

**Late Work and Make-up Exams**
A note is required to excuse students from all graded in class work such as exams. Make up exams will have to be administered or a grade of zero will be given for that exam. 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 questions on exams at the instructors’ discretion.

**Cell Phone Use**
Cell phone use should be restricted to the use of the Kahoot! app, or to research answers for discussion. Please refrain from all other cell phone use in class; this includes texting, tweeting, swiping right, posting to Insta, 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; Kahoot!, 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.

**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/) 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, and the College of Science and Engineering Grade Appeals webpage at 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/](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.