Evolution: History of an Idea Syllabus

Course Description

In this course, you will be introduced to historical and modern theories of evolution and associated geological history, as well as to theories from other fields that impacted the development of evolutionary thought. You will be introduced to and gain a working knowledge of *On the Origin of Species* by Charles Darwin as you will read in its entirety. You will need to know names, some of which are in foreign languages, dates, and accomplishments of various scientists throughout history, not just limited to Biology. You will also be reading *Darwin’s Backyard*, which details the various experiments that Darwin conducted to expand his theory, but also to introduce you to the other factors in play at the time, geology in particular. By reading both of these books, you will get a good understanding of the topics Darwin covered to convince us of the validity of Natural Selection and, as importantly, the reasons behind them. I will provide Lectures on each chapter from *Origin* and associated geological or biological topics.
Each Module has an associated Geological Aspects that you will read and will be briefly discussed in lecture. You will have to memorize many facts. As such, this is not a typical science course; you will be not only concerned with the scientific ideas, but the HISTORY associated with those ideas, so prepare appropriately.

Weekly Expectations
The course is set up in 14 weekly Modules. Weekly, you should expect to read a chapter of On the Origin of Species by Charles Darwin, read a chapter of Darwin's Backyard by Jim Costa, read Geological Aspects that are written for each Module with selected optional reading, and watch lectures. For each Module, I have supplied optional reading, many of which are linked to citation. I, however, realize that there is much reading for this course already, and give these for completeness and more for you to browse, if you so choose.

Course Objectives

By the end of this course, you will be able to discuss Darwin's The Origin of the Species and have a working knowledge of evolution, as well as the following:

Essential Learning Objective
(from the IDEA Center)

Objective 1. Gaining factual knowledge (terminology, methods, trends).
You will be able to recall facts, such as how variation and natural selection leads to evolution.

Objective 2. Learning fundamental principles, generalizations, or theories.
You will be able to combat misconceptions regarding the key processes of the natural world, and understand how we have acquire the scientific knowledge we have today.

Objective 3. Learning to apply course materials (to improve rational thinking, problem solving, and decisions).
By understanding the course material you will be able to think critically about topics in evolution.

Objective 4. Developing skills in expressing oneself orally or in writing.
Essays will help strengthen problem-solving skills. It is also time for you to practice expressing complex concepts to your peers in writing.

Instructor

Dr. James P. Pitts
Department of Biology
Utah State University
Office: GEOL301
Course Resources

Required Texts:
The Annotated Origin by C. Darwin and J. Costa: ~$25
Darwin’s Backyard by J. Costa: ~$27

Optional Textbook:

Evaluation Methods and Criteria

Weekly Lecture:
My lectures will cover the main topics in that week’s assignment of The Origin of the Species, as well as short associated topics in geology. Given that this course consists of you reading two books simultaneously, I will try to keep my lectures as brief as possible. At the most they will be the equivalent of 2 class periods (100 mins), but more often they will be the equivalent of one class period (50 mins). These lectures will stress the importance of the specific chapters of Origin and tie in additional topics in biology and geology.

Weekly Quizzes with Essays on The Origin of the Species, Geological Aspects, and my Lectures:
These weekly assignments will entail answering multiple choice questions and writing about core topics of evolution, or history of science including geology, as it relates to our understanding of evolution, covered in chapters of The Annotated Origins and in my lectures. Students will write about the scientific understanding of evolution, the evidence that led to that understanding, and the influence of evolutionary thought on philosophy and society. Essays will be evaluated on depth of scientific, philosophical and societal understanding, and on the quality of the writing.
There will be 14 Quizzes with Essays assigned during this course. You will answer these questions on your own and will turn them in via Canvas; this is not a group assignment. Late Quizzes will not be accepted and will result in a zero for the assignment. The ESSAYS will be graded as follows: those that are not accurate or are grammatically impaired will get a zero; those that are accurate will be ranked and be given a grade from A to F. For the Essays, if you write just a sentence or two, you will not receive credit. It is an Essay after all.

They are open-book. I will provide a pdf of the questions so that you have them while you read the chapter without having to open the Canvas quiz.

**Weekly Quizzes on Darwin’s Backyard:**

These weekly assignments will entail multiple choice questions about Darwin’s experiments and motivation, extensions of Origins, core topics of evolution, or history of science including geology, as it relates to our understanding of evolution, covered in chapters of Darwin’s Backyard. This book will give you a better understanding, not only of evolution and associated geology, but of Darwin, the individual.

They are open-book. I will provide a pdf of the questions so that you have them while you read the chapter without having to open the Canvas quiz.

**Participation in Discussion Questions**

I will post 2 discussion questions per week, one on Tuesday and one on Wednesday. They will close at the end of the week on Sunday. The total number will be 24 discussion questions and they will start on week 2/Module 2. For undergraduate students to receive 5% for this task, they will need to respond to at least 12 of these discussion questions. For graduate students to receive 5% for this task, they will need to respond to at least 18 of these discussion questions.

**Final Test:**

There will be a final cumulative test that will be similar to the multiple-choice questions asked in the weekly modules. It is closed-book, timed, so you will actually have to retain information covered in lectures and general concepts gained from the readings.

**Time Commitment**

You should expect to commit:

- **2-3 hours** a week reading and assimilating Origin or the Darwin reading for that week
- **1-2 hours** a week reading and assimilating Darwin's Backyard
- **1-2 hours** a week watching my lectures
- **1 hour** per week responding to discussion
- **1 hour** a week taking the quizzes

**6-9 TOTAL HOURS PER WEEK** spent on this course

**Grade Scheme**

**Grading**

Quizzes/Essays (14) on Origins 50%
Quizzes on *Darwin’s Backyard* 30%
Participation in Discussion 5%
Final 15%

The following grading standards will be used in this class:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 % to 93.0%</td>
</tr>
<tr>
<td>A-</td>
<td>&lt; 93.0 % to 90.0%</td>
</tr>
<tr>
<td>B+</td>
<td>&lt; 90.0 % to 87.0%</td>
</tr>
<tr>
<td>B</td>
<td>&lt; 87.0 % to 83.0%</td>
</tr>
<tr>
<td>B-</td>
<td>&lt; 83.0 % to 80.0%</td>
</tr>
<tr>
<td>C+</td>
<td>&lt; 80.0 % to 77.0%</td>
</tr>
<tr>
<td>C</td>
<td>&lt; 77.0 % to 73.0%</td>
</tr>
<tr>
<td>C-</td>
<td>&lt; 73.0 % to 70.0%</td>
</tr>
<tr>
<td>D+</td>
<td>&lt; 70.0 % to 67.0%</td>
</tr>
<tr>
<td>D</td>
<td>&lt; 67.0 % to 60.0%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 59.0 % to 0.0%</td>
</tr>
</tbody>
</table>

**Course Schedule/Outline**

<table>
<thead>
<tr>
<th>Day</th>
<th>Lectures</th>
<th>Quizzes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Readings from Darwin’s <em>Origin of the Species</em></td>
</tr>
<tr>
<td>Module 1:</td>
<td>Organization and “On the Origin of the Species”</td>
<td>Costa’s Intro + Darwin’s Intro to Origins</td>
</tr>
<tr>
<td></td>
<td><em>Movie: Humboldt and the Invention of Nature</em></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Module 5:</td>
<td>“On the Origin of the Species”</td>
<td>Origins IV: Natural Selection</td>
</tr>
<tr>
<td>Module 8:</td>
<td>“On the Origin of the Species”</td>
<td>Origins VI: Difficulties on Theory</td>
</tr>
<tr>
<td>Module 14:</td>
<td>“On the Origin of the Species” and Barnacles</td>
<td>Origins XIII + XIV: Mutual Affinities and Conclusion</td>
</tr>
</tbody>
</table>
Attendance and Excused Absences Policy

This class is online.

Library Services

All USU students attending classes in Logan, at our Regional Campuses, or online can access all databases, e-journals, and e-books regardless of location. Additionally, the library will mail printed books to students, at no charge to them. Students can also borrow books from any Utah academic library. Take advantage of all library services and learn more at libguides.usu.edu/rc.

Classroom Civility

Utah State University supports the principle of freedom of expression for both faculty and students. The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual engaging in such behavior may be subject to disciplinary action. Read Student Code Article V Section V-3 (https://studentconduct.usu.edu/studentcode/article5) for more information.

University Policies & Procedures

COVID-19 Classroom Protocols

In order to continue to provide a high standard of instruction at USU, and to limit the spread of COVID-19 during the pandemic, students are asked to follow certain classroom protocols. These protocols are in place not only for your safety but also the safety of the rest of the campus community. You will be asked to clean your desk area at the start of each class, sit in designated seats, wear face coverings, and follow dismission instructions. There may be individual medical circumstances that prevent some students from using face coverings. These circumstances will be rare, but if they do exist, we ask that everyone be respectful. It is imperative that we each do our part so that on-campus instruction can continue.

Academic Freedom and Professional Responsibilities

Academic freedom is the right to teach, study, discuss, investigate, discover, create, and publish freely. Academic freedom protects the rights of faculty members in teaching and of students in learning. Freedom in research is fundamental to the advancement of truth. Faculty members are entitled to full freedom in teaching, research, and creative activities, subject to the limitations imposed by professional responsibility. Faculty Code Policy #403 (http://www.usu.edu/hr/files/uploads/Policies/403.pdf) further defines academic freedom and professional responsibilities.

Academic Integrity – "The Honor System"

Each student has the right and duty to pursue his or her academic experience free of dishonesty. To enhance the learning environment at Utah State University and to develop student academic integrity, each student agrees to the following Honor Pledge:
"I pledge, on my honor, to conduct myself with the foremost level of academic integrity."

A student who lives by the Honor Pledge is a student who does more than not cheat, falsify, or plagiarize. A student who lives by the Honor Pledge:

- Espouses academic integrity as an underlying and essential principle of the Utah State University community;
- Understands that each act of academic dishonesty devalues every degree that is awarded by this institution; and
- Is a welcomed and valued member of Utah State University.

**Academic Dishonesty**

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the University’s Student Code. Acts of academic dishonesty include but are not limited to:

- **Cheating**: using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:
  - Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done “individually;”
  - Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
  - Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;
  - Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;
  - Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;
  - Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.

- **Falsification**: altering or fabricating any information or citation in an academic exercise or activity.

- **Plagiarism**: representing, by paraphrase or direct quotation, the published or unpublished work of another person as one’s own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

For additional information go to: ARTICLE VI. University Regulations Regarding Academic Integrity (https://studentconduct.usu.edu/studentcode/article6)

**Sexual Harassment/Title IX**

Utah State University is committed to creating and maintaining an environment free from acts of sexual misconduct and discrimination and to fostering respect and dignity for all members of the USU community. Title IX and USU Policy 339 (http://www.usu.edu/policies/339) address sexual harassment in the workplace and academic setting.

The university responds promptly upon learning of any form of possible discrimination or sexual misconduct. Any individual may contact USU’s Office of Equity (https://equity.usu.edu/) for available options and resources or clarification. The university has established a complaint procedure to handle all types of discrimination complaints, including sexual harassment (USU Policy 305 (http://www.usu.edu/policies/305/)), and has designated the Office of Equity Director/Title IX Coordinator as the official responsible for receiving and investigating complaints of sexual harassment.

**Withdrawal Policy and "I" Grade Policy**
Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term ‘extenuating’ circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

Students with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) (http://www.usu.edu/drc/) as early in the semester as possible (University Inn # 101, (435) 797-2444, drc@usu.edu (mailto:drc@usu.edu)). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

Students who are at a higher risk for complications from COVID-19 or who contract COVID-19 may also be eligible for accommodations.

Diversity Statement

Regardless of intent, careless or ill-informed remarks can be offensive and hurtful to others and detract from the learning climate. If you feel uncomfortable in a classroom due to offensive language or actions by an instructor or student(s) regarding ethnicity, gender, or sexual orientation, contact:

- Division of Student Affairs: https://studentaffairs.usu.edu (https://studentaffairs.usu.edu/), (435) 797-1712, studentservices@usu.edu (mailto:studentservices@usu.edu), TSC 220
- Student Legal Services: https://ususa.usu.edu/student-association/student-advocacy/legal-services (https://ususa.usu.edu/student-association/student-advocacy/legal-services), (435) 797-2912, TSC 326,
- Access and Diversity: http://accesscenter.usu.edu (http://accesscenter.usu.edu/), (435) 797-1728, access@usu.edu (mailto:access@usu.edu); TSC 315
- Multicultural Programs: http://accesscenter.usu.edu/multiculture (http://accesscenter.usu.edu/multiculture), (435) 797-1728, TSC 315
- LGBTQA Programs: http://accesscenter.usu.edu/lgbtqa (http://accesscenter.usu.edu/lgbtqa/), (435) 797-1728, TSC 3145
- Provost’s Office Diversity Resources: https://www.usu.edu/provost/diversity (https://www.usu.edu/provost/diversity/), (435) 797-8176

You can learn about your student rights by visiting:
The Code of Policies and Procedures for Students at Utah State University: https://studentconduct.usu.edu/studentcode (https://studentconduct.usu.edu/studentcode/)

Grievance Process

Students who feel they have been unfairly treated may file a grievance through the channels and procedures described in the Student Code: Article VII (https://studentconduct.usu.edu/studentcode/article7). The Code of Policies and Procedures for Students at Utah State University: https://studentconduct.usu.edu/studentcode (https://studentconduct.usu.edu/studentcode/)

Full details for USU Academic Policies and Procedures can be found at:

- Student Conduct (http://www.usu.edu/studentconduct)
- Student Code (https://studentconduct.usu.edu/studentcode/)
- Academic Integrity (https://studentconduct.usu.edu/studentcode/article6)
- USU Selected Academic Policies and Procedures (http://www.usu.edu/provost/faculty-life/syllabus.cfm)
Emergency Procedures

In the case of a drill or real emergency, classes will be notified to evacuate the building by the sound of the fire/emergency alarm system or by a building representative. In the event of a disaster that may interfere with either notification, evacuate as the situation dictates (i.e., in an earthquake when shaking ceases or immediately when a fire is discovered). Turn off computers and take any personal items with you. Elevators should not be used; instead, use the closest stairs.

Mental Health

Mental health is critically important for the success of USU students. As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. Utah State University provides free services for students to assist them with addressing these and other concerns. You can learn more about the broad range of confidential mental health services available on campus at Counseling and Psychological Services (CAPS) (https://counseling.usu.edu).

Students are also encouraged to download the “SafeUT App” (https://healthcare.utah.edu/uni/programs/safe-ut-smartphone-app) to their smartphones. The SafeUT application is a 24/7 statewide crisis text and tip service that provides real-time crisis intervention to students through texting and a confidential tip program that can help anyone with emotional crises, bullying, relationship problems, mental health, or suicide related issues.