

Understanding Evolution: A Classroom Perspective
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Rutgers, The State University of New Jersey
The Graduate School of Education
Spring 2014
3 Credits

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Phone Number: <i>(908) 526-1200 ext 8250</i>	<i>Waller Hall: 2nd Floor Computer Lab</i>
Office Hours: <i>7:30 pm Monday</i>	Prerequisites or other limitations:
Mode of Instruction: ¹ <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Seminar <input type="checkbox"/> Hybrid <input type="checkbox"/> Online <input type="checkbox"/> Other	Permission required: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Directions about where to get permission numbers:

Learning goals²

Students will meet selected standards adapted from the New Jersey Department of Education's New Jersey Professional Standards for Teachers and School Leaders during the teacher internship experience.

1. Students shall understand the practice of culturally responsive teaching.
2. Students shall understand instructional planning, design long- and short-term plans based upon knowledge of subject matter, students, community, and curriculum goals, and shall employ a variety of developmentally appropriate strategies in order to promote critical thinking, problem solving and the performance skills of all learners.
3. Students shall understand and use multiple assessment strategies and interpret results to evaluate and promote student learning and to modify instruction in order to foster the continuous development of students.
4. Students shall understand individual and group motivation and behavior and shall create a supportive, safe and respectful learning environment that encourages positive social interaction, active engagement in learning and self-motivation.
5. Students shall adapt and modify instruction to accommodate the special learning needs of all students.

Course catalog description:

Helps pre- and in-service life science teachers see evolution from the perspective of the classroom. Presents an overview of evolution from a variety of perspectives encompassing molecular processes as well as those that occur in populations, both in time and space. Particular emphasis given to the central role of the species as the unit of evolutionary change. Within the context of species, adaptation, natural selection, speciation, classification, and phylogeny explored, and also the contemporary issues of meeting creationism head-on.

¹ Check 1:

² These can be TEAC claims or objectives from other sources.

Other description of course purposes, context, methods, etc:

The format of the class will involve discussion, activities and readings. Therefore, participation is essential.

Grading policy:

Attendance and Participation 10%

Book Review 15%

Textbook Review 10%

Field Trip Activity 20%

*Lessons 15%

Midterm 15%

Final 15%

*Submit to Sakai Teacher Education Portfolio Site- Late Phase Lesson Plan and Unit Plan.
Submission of the appropriate artifacts is critical for successful completion of the course and degree program.

Academic Integrity:

Please refer to the Policy on Academic Integrity for Undergraduate and Graduate Students at <http://academicintegrity.rutgers.edu>. I will follow the policy strictly.

The University Code of Student Conduct can be accessed at:

<http://rci.rutgers.edu/%7Epolcomp/judaff/ucsc.shtml>

For information on the academic integrity policy, please go to:

<http://academicintegrity.rutgers.edu/integrity.shtml#I>

A multimedia presentation on plagiarism can be found at:

<http://www.rci.rutgers.edu/~polcomp/integrity/realifeexamples.html>

Related regulations may also be found in the Rutgers Graduate School of Education Catalog. For any and all assignments and class activities, including in-class quizzes, take-home quizzes, tests, papers, field projects, PowerPoint, and any other class related work, no copying of any kind is allowed, unless copied text is placed within quotations and author/source is appropriately cited. Clear evidence of extensive plagiarism will likely result in a grade of F for the assignment AND course.

Tentative Course Schedule

This is a tentative schedule, therefore, activities, topics, and articles may be changed to reflect the needs of the class.

Week 1

Nature of Science

Major Unifying Themes in Biology

Intelligent Design/Legal Issues

Reading: Evolution and the Nature of Science (Chapter One)

Week 2

Darwin's dangerous Idea (DVD) excerpts.

Darwin & Evolution, *Natural History*, November, 2005.

Reading: The Evidence for Biological Evolution (Chapter Two)
Creationist perspectives (Chapter Three)

Week 3

Natural Selection

Variation, Mutation and Adaptation.

Population genetics, Hardy-Weinberg Equilibrium

Reading: *Darwin & Evolution; Evolution in Action, The Illusion of Design, Natural History Magazine*, 2005.

Week 4

Molecular evolution activity (L-gulonolactone oxidase).

K-T Boundary

Reading: *Darwin & Evolution; Darwin's Shrink, The Origins of Form, The Perimeter of Ignorance, Natural History Magazine*, 2005.

Resource: [Understanding Evolution](#)

Textbook Review Due

Week 5

Speciation.

Cladograms

Week 6

Human evolution.

Week 7

Evolution of the eye and Irreducible Complexity (PBS.org)

Midterm Review

Week 8

Spring Recess

Week 9

Midterm

Case Study: Ken Bingham High School Biology Class, Evaluating student misconceptions. (PBS.org)

Student Lesson

Week 10

Student Lessons

Week 11

Student Lessons

Book Review Due

Week 12

Student Lessons

Week 13

Student Lessons

Field Trip Activity Proposals

Week 15

No Monday Night Class**

*****Field Trip to the American Museum of Natural History on Sunday, May 4th. 79th St. at Central Park West, New York, NY.***

Week 16

Field Trip Activities Due

Final Review