This course syllabus is intended as a set of guidelines for Biology 1407. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

Instructor Information:

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972-273-3279
P-333

Course Information

Biology for Science Majors II
Biology 1407
Section number: 7205
Credit hours: 4
Class meeting time: Lecture Wed 5:45-8:35PM C244
Website: www.northlakeviology.com

Course Description: An introductory survey of current biological concepts for students majoring in the sciences. Emphasis will be placed on topics which include evolution, biological diversity, ecology, and comparative structure and function of organisms. (3 Lec., 3 Lab.)

Coordinating Board Academic Approval Number 2601015103

Prerequisite: BIOL 1406. One of the following must be met: (1) Developmental Reading 0093 AND Developmental Writing 0093; (2) English as a Second Language
(ESOL) 0044 AND 0054; or (3) have met Texas Success Initiative (TSI) Reading and Writing standards AND DCCCD Writing score prerequisite requirement.

**Required or Recommended Textbooks and Materials**


**Course Objectives**

1. Identify the roles of Georges Cuvier, Jean-Baptiste de Lamark, Charles Lyle, Charles Darwin and others in the development of the concept evolution. EEO 2-5 and CCIC 1, 2, 4, 5
2. Explain the concept of descent with modification as an explanation for the diversity of life and natural selection as the mechanism that leads to adaptation. EEO 3 and CCIC 1, 2, 4, 5
3. Recognize the population as the unit of microevolution and various evolutions that can play a role in the evolution of a population. Explain the concept of the Hardy/Weinberg Theorem and its application to the study of the evolution of a population. EEO 1, 3 and CCIC 1, 4, 5
4. Discuss the concept and definition of a species identifying methods of speciation and reviewing reproductive barriers that lead to population isolation. Review sympatric and Allopatric speciation. EEO 2 and CCIC 1, 4, 5
5. Recognize the concepts behind the modern Cladistic approach to systematics and its application to the diversity of life. EEO 1, 3 and CCIC 1, 4
6. Review prokaryotic diversity, the breath of metabolic diversity that exist within the group and their ecological contribution to life on earth. EEO 3, 4, 5 and CCIC 1, 4
7. Identify the diversity that exist among the protists and modern evidence that suggest that this group should be divided into a number of new kingdoms. EEO 3 and CCIC 1, 4
8. Recognize Preadaptations that were collectively necessary for the evolution of terrestrial plants and the impact this had on terrestrial ecology and species diversity. EEO 3 and CCIC 1, 4
9. Review the diversification of terrestrial plants such as Bryophytes, Ferns and fern allies, Gymnosperms and Angiosperms EEO 3 and CCIC 1, 4, 5
10. Outline the role of fungi to terrestrial ecology, their metabolic diversity and taxonomic diversity. EEO 5 and CCIC 1, 4
11. Discuss possible events that may have contributed to multicellularity among animals and that let to the Cambrian explosion. EEO 3 and CCIC 1, 4
12. Review invertebrate diversity and evolution recognizing the unique characteristics of the emphasized phyla. CCIC 1, 4
13. Explore the evolution of the Phylum Chordata and the vertebrates in particular, identifying key points of divergence that led to the major vertebrate groups and their distinguishing characteristics. EEO 3 and CCIC 1, 4, 5
14. Review basic concepts of ecology focusing on the population, community and ecosystems as models for study. Review population dynamics and particularly the explosive growth of human population and its impact on all life on earth. EEO 1, 4, 5 and CCIC 1, 4, 5
15. Discuss highly relevant but sometimes controversial topics such as global warming, depletion of the ozone layer, desertification and others as they relate to man as well as their impact on the global ecosystem.
EEO 4, 5 and CCIC 1, 4, 5

**Specific Course Learning Outcomes**

Students will master the basic concepts of biological evolution particularly decent with modification and natural selection.

Students will master basic concepts population genetics and microevolution.

Students will gain an understanding of systematic and the common characteristics that link all life on Earth.

Students will gain an appreciation for the diversity of life.

Students will recognize and understand critical events that led to the evolution of vertebrate diversity.

Students will master basic concepts of ecology and ecological interactions

Students will gain an appreciation of the ecosystem as a basic functional unit of ecology.

**Course Outline – Corresponds to chapters in text**

- Descent With Modification: A Darwinian View of Life
- The Evolution of Populations
- The Origin of Species
- Tracing Phylogeny: Macroevolution, the Fossil Record and Systematics
- Prokaryotes and the Origins of Metabolic Diversity
- The Origins of Eukaryotic Diversity
- Plant Diversity I: the Colonization of Land
- Plants Diversity II: The Evolution of Seed Plants
- Fungi
- Invertebrates and the Origin of Animal Diversity
- Vertebrate Evolution and Diversity
- Introduction to Ecology
- Population Ecology
- Community Ecology
- Ecosystems

**Means of Assessment of Course Learning Outcomes**

Learning outcomes will be assessed by examinations in both lecture and laboratory. Additionally each of the twelve units completed in lab will be assessed by either lab report, quiz or other activities deemed appropriate by the instructor.
Attendance:

Lecture and laboratory attendance is required. All responsibility for make-up work is that of the student. No absence is permitted from lab without penalty except in extreme circumstances. Your laboratory instructor will review lab attendance and the makeup policy at your first lab. Laboratory units cannot be completed without laboratory attendance. Attendance in both lecture and lab will be taken daily and will factor in to your grade (see below).

Evaluation Procedures

Your grade will be determined from a combination of 5 lecture exams, four lab exams, quizzes and hand-ins in both lecture and lab. Each lecture exam and lab exam is valued at 100 points. **IF A LECTURE EXAM IS MISSED, MAKE UP MUST BE COMPLETED WITHIN TWO CLASS DAYS AFTER THE EXAM. THE MAKEUP EXAM MAY BE AN ESSAY OR OBJECTIVE EXAM. THE ONLY EXCUSED ABSENCE FROM A LECTURE EXAM IS EITHER SEVERE ILLNESS OR BEREAVEMENT. IT ALSO MUST BE DOCUMENTED. A SECOND LECTURE EXAM CANNOT BE MADE UP.**

Lecture pop test and/or additional lab assignments may be assigned during the semester. If so the total number of points required for a given grade will change, but your final grade will always be based upon a percentage of the total points, i.e. 90-100 for an A, 80 to 89.99 for a B and so on. **IF GIVEN, A LECTURE POP TEST/QUIZ CANNOT BE MADE UP IF MISSED, NO MATTER WHAT THE REASON.**

Exams and Assignments

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<tr>
<td>Lecture Exams (5)</td>
<td>500</td>
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<tr>
<td>Lecture Quiz/Attendance/Misc</td>
<td>100</td>
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<tr>
<td>Lab Exam (3)</td>
<td>300</td>
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<tr>
<td>Lab Quiz/Attendance/Misc</td>
<td>100</td>
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Grading Scale

Your final grade will be a combination of both lecture and lab, with lecture representing 60% and lab 40% of the final grade.

Discipline/ Course/ Department/Policies

Students are expected to be on time for all class activities and to fully participate in class activities.
Cell phones should be turned to silent and be put away during class activities. All students are expected to abide by the college Student Code of Conduct.

**INSTITUTIONAL POLICIES**

**ACADEMIC DISHONESTY**
The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, "academic dishonesty", includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion".

Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

**NOTIFICATION OF ABSENCE DUE TO RELIGIOUS HOLY DAY(S)**
Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the Student Obligations section of the college catalog for more explanation. You are required to complete any assignments or take any examinations missed as a result of the absence within the time frame specified by your instructor.

**REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT**
In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, any student who feels that he or she may need any special assistance or accommodation because of an impairment or disabling condition should contact the ADA/ACCESS Office at (972) 273-3165 or visit Room A-430 at North Lake College. It is the policy of NLC to provide reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ADA/ACCESS Office.

**DROP POLICY**
If you are unable to complete this course, you must officially withdraw June 21, 2012. Withdrawing is a formal procedure which you must initiate; your instructor cannot do it for you.

All Dallas County Community Colleges charge a higher tuition rate to students registering the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go on line to: http://www.DCCCD.edu/thirdcourseattempt.

**FINANCIAL AID STATEMENT**
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy.

To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for
COUNSELING SERVICES
Counseling services for personal issues are provided to all students currently enrolled at North Lake College. These services are provided by licensed professionals who are bound by confidentiality (within ethical parameters) at no charge. With the assistance of a counselor, students are able to identify, understand, resolve issues and develop appropriate skills. To make an appointment call 972-273-3333 or visit A 430.

STOP BEFORE YOU DROP
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop.
You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions.
Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

WRITING CENTER (A309)
The Writing Center supports and supplements classroom instruction by providing focused, individualized writing instruction in response to the specific needs of the student. Its services are available to all North Lake students, not just those enrolled in English classes. The tutors are skilled writing specialists who can help students clarify writing tasks, understand instructors' requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or "fixing" students' papers, the Writing Center staff focuses on helping students develop and improve their writing skills.
Located in Room A309, the Writing Center is open 8:00 AM to 9:30 PM Monday through Thursday and 8:00 AM to 5:00 PM on Friday. Saturday hours are 9:00 AM to 2:00 PM during fall and spring semesters. Hours will vary during other sessions. Students who have scheduled an appointment in advance will have a tutor available to work with them at their scheduled time. Walk-ins are welcome, but they may have to wait for an opening or make an appointment for a later time, perhaps a later day. To schedule an appointment, come by the Writing Center, call 972-273-3089, or email nlcwritingcenter@dcccd.edu.

Exemplary Educational Objectives
This course satisfies all of the Exemplary Educational Objectives for the natural sciences. They are:

1. To understand and apply method and appropriate technology to the study of natural sciences.
2. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses and interpretation both orally and in writing.
3. To identify and recognize the differences among competing scientific theories.
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
5. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

Core Curriculum Intellectual Competencies

This course reinforces 6 of the 6 Core Curriculum Intellectual Competencies defined by the Texas Higher Education Coordinating Board. The CCI's identified by the DCCCD which are reinforced by Biology 1406 are as follows:

This course reinforces 5 of the Core Curriculum Intellectual Competencies defined by the Texas Higher Education Coordinating Board.

1. **READING**: Reading at the college level means the ability to analyze and interpret a variety of printed materials--books, articles and documents. A core curriculum should offer students the opportunity to master both general methods of analyzing printed materials and specific methods for analyzing the subject matter of individual disciplines.

2. **WRITING**: Competency in writing is the ability to produce clear, correct and coherent prose adapted to purpose, occasion, and audience. Although correct grammar, spelling and punctuation are each a sine qua non in any composition, they do not automatically ensure that the composition itself makes sense or that the writer has much of anything to say. Students need to be familiar with the writing process including how to discover a topic and how to develop and organize it, how to phrase it effectively for their audience. These abilities can be acquired only through practice and reflection.

3. **SPEAKING**: Competence in speaking is the ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion and audience. Developing this competency includes acquiring poise and developing control of the language through experience in making presentations to small groups, to large groups and through the media.

4. **LISTENING**: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.

5. **CRITICAL THINKING**: Critical thinking embraces methods of applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is one of the applications of critical thinking, used to address an identified task.

6. **COMPUTER LITERACY**: Computer Literacy at the college level means the ability to use computer-based technology in communicating, solving problems and acquiring information. Core-educated students should have an understanding
of the limits, problems and possibilities associated with the use of technology and should have the tools necessary to evaluate and learn new technologies as they become available.

### Learning Activities, Outcomes, and Assessment

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<tr>
<th>Learning Activity</th>
<th>Learning Outcomes</th>
<th>Assessment</th>
<th>EEO’s &amp; CCIC’s</th>
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<tbody>
<tr>
<td><strong>Provide a brief description of the learning activity.</strong></td>
<td><strong>Briefly list the specific learning outcomes/objectives for the activity.</strong></td>
<td><strong>How will the activity be assessed?</strong></td>
<td><strong>Which EEO’s and CCIC’s are addressed by the learning activity?</strong></td>
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<tr>
<td>1. Demonstrate an understanding of the concepts of decent with modification and natural selection and how they relate to the diversity of life.</td>
<td>Assigned readings, lecture and discussion in class, related laboratory activities.</td>
<td>Ten imbedded questions in Lecture Exam 1 Correct response on 70% of imbedded questions.</td>
<td>EEO 3 and CCIC 1, 2, 4, 5</td>
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<td>2. Demonstrate and understanding of the evolutionary events and their possible causes that led the evolution of vertebrates.</td>
<td>Assigned readings, lecture and discussion in class, related laboratory activities.</td>
<td>Six imbedded questions in Lecture Exam 4 Correct response on 70% of imbedded questions.</td>
<td>EEO 3 and CCIC 1, 4</td>
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<td>3. Demonstrate an understanding of the structure and dynamics of the ecosystems.</td>
<td>Assigned readings, lecture and discussion in class, field observations, related video demonstrations and laboratory activities.</td>
<td>Ten Imbedded questions in Lecture Exam 5. Correct response on 70% of imbedded questions.</td>
<td>EEO 1, 4, 5 and CCIC 1, 4, 5</td>
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