This course syllabus is intended as a set of guidelines for BIOL 1406-Online-Partial. Both North Lake College and your instructor reserves the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

COURSE SYLLABUS

BIOLOGY 1406
Spring 2019

Section 73401
Lecture online, hands-on labs from home with a kit

INSTRUCTOR:

Valerie Miller, M.S.

Email: VAMiller@dcccd.edu

Withdrawal date: April 17, 2019

COURSE INFORMATION:

- Biology for Science Majors I (Biology 1406)
- Section number: 73401
- Credit hours: 4
- Class meeting time: MTWRFSu
  - Lecture online, PowerPoints, quizzes, discussions on eCampus, all exams proctored through eCampus- Respondus Lockdown Monitor.
  - Hands-on Labs with a kit at home/online, a comprehensive lab practical proctored through eCampus- Respondus Lockdown Monitor.

COURSE DESCRIPTION: An introductory survey of contemporary biology for students majoring in the sciences. Topics emphasized will include the chemical basis of life, structure and function of cells, energy transformations, and molecular biology and genetics. (3 Lecture, 3 Lab.). Coordinating Board Academic Approval Number 2601015103
COURSE PREREQUISITES:
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 TEXTBOOKS, MATERIALS AND SKILLS:
*Textbook:* 2 options below- Recommended- No access to Modified Mastering Biology required. 9th edition is acceptable.

<table>
<thead>
<tr>
<th>Option 1: From Follett Bookstore</th>
<th>Option 2: From Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campbell Biology, Volume 1 for North Lake College 2014 10/e,” (This book is customized for the course BIOL1406 taught at the North Lake College and has chapters 1-17) <a href="http://www.bkstr.com/northlakestore/shop/textbooks-and-course-materials">http://www.bkstr.com/northlakestore/shop/textbooks-and-course-materials</a></td>
<td></td>
</tr>
<tr>
<td><strong>Picture of the textbook</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Campbell Biology" /></td>
<td><img src="image" alt="Campbell Biology" /> - 10th edition OR <img src="image" alt="Campbell Biology" /> 9th edition</td>
</tr>
</tbody>
</table>

**Lab Material:** General Biology 3 Volume 1 with Photosynthesis from eScience Labs.

**SKU:** 1626 (When buying from Follett bookstore) Follett bookstore will sell a code that has to be entered on eScience website to have your kit mailed to you.

**SKU: NLC1626** (When buying directly from eScience). If ordering directly from eScience, make a student account and search in Custom Kits. You will not find this kit in the general database of eScience as it is customized for NLC.

**Computer with a camera (a simple webcam) and Internet access:** To complete this class students require a computer with a reliable internet to access the course, complete and submit assignments and a camera built-in or attached to the computer for tests.

**Digital Camera:** A simple digital camera is required to document the set-up and results of the laboratory experiments. Smart phone camera will work.
**Skills:** Typing for lab reports, accessing important website through internet, reading and comprehension, following directions, appropriate communication via email or phone, attaching files to an email attaching pictures to a document, submitting assignments on eCampus.

**COURSE OBJECTIVES and OUTLINE:**

<table>
<thead>
<tr>
<th>Course Outline-corresponding Chapters</th>
<th>Course Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to Biology</td>
<td>Recognize the characteristics that distinguish living things from nonliving. Identify the tools used in biological studies such as the microscope, experimental design, scientific problem solving and interrelations between science, technology and society.</td>
</tr>
<tr>
<td>2. Basic Chemistry</td>
<td>Define the basic characteristics of matter, the atom, atomic theory and chemical bonding as it relates to the formation of the molecules of life.</td>
</tr>
<tr>
<td>3. Chemistry of Water</td>
<td>Describe the unique characteristics of water that make it essential to life on earth.</td>
</tr>
<tr>
<td>4. Chemistry of Carbon</td>
<td>Recognize the properties of carbon that make it central to the molecules of life and the role of functional groups in the characteristics of carbon compounds.</td>
</tr>
<tr>
<td>5. Biomolecules</td>
<td>Identify the four major groups of biomolecules, their chemical characteristics, the roles they play in life and their basic structural characteristics.</td>
</tr>
<tr>
<td>6. The Cell</td>
<td>Recognize the cell as the structural and functional unit of life while reviewing the cell theory, structure and function, Prokaryotic vs. Eukaryotic and the endosymbiotic theory.</td>
</tr>
<tr>
<td>8. Introduction to Metabolism</td>
<td>Define energy, its role in chemical reaction and reaction mechanisms and the role of enzymes in biological reactions.</td>
</tr>
<tr>
<td>9. Cellular Respiration</td>
<td>Review the process of cellular respiration and alternative respiratory pathways.</td>
</tr>
<tr>
<td>10. Photosynthesis</td>
<td>Recognize the nature of photosynthesis to life on earth, identify the major steps in the process and environmental factors that impact photosynthetic efficiency.</td>
</tr>
<tr>
<td>11. Cell Communication</td>
<td>Explain the concept of cell communications at the molecular level</td>
</tr>
<tr>
<td>12. Cell Cycle-Cell Division-Mitosis</td>
<td>Review the role of mitosis and meiosis in the lifecycles of eukaryotes, recognizing the basic steps in each process and identifying how they differ</td>
</tr>
<tr>
<td>13. Meiosis</td>
<td>Review the role of meiosis in the lifecycles of eukaryotes and sexual reproduction</td>
</tr>
<tr>
<td>14. Mendelian Genetics</td>
<td>Identify the basic mechanisms of classical genetics and how genes are passed on.</td>
</tr>
<tr>
<td>15. Human Genetics</td>
<td>Identify behavior of various human genes in heredity.</td>
</tr>
<tr>
<td>16. DNA structure and function</td>
<td>Explain how DNA was determined to be the genetic material, its molecular structure and how the structure of DNA relates to its role in genetic continuity and expression.</td>
</tr>
<tr>
<td>17. DNA to Protein</td>
<td>Identify the process of protein synthesis and the expression of the genetic code.</td>
</tr>
</tbody>
</table>

**SPECIFIC COURSE LEARNING OUTCOMES:** Students will master the following

- The concept of the cell as the structural and functional unit of life.
- Basic concepts of chemistry and atomic theory.
- Understanding of the role of biological molecules in the chemistry of life.
- Basic concepts of cellular physiology such as cellular respiration and photosynthesis.
- Basic principles of heredity.
- Basic concepts of molecular genetics including the structure and functions of DNA and RNA in relation to the production of proteins.
ATTENDANCE POLICY:
Since this class is online, regularly accessing the course and completing assignments on time is considered attendance. Quizzes/assignments may not be available after the due date. Work required for both-lecture and laboratory- should be done in a timely manner. Each assignment will have a deadline and work should be submitted on or before the deadline. You may work ahead but any work submitted after the deadline will not be considered. LECTURE PowerPoints: are online in eCampus.
LABORATORY experiments to be done from home and submitted via eCampus. All responsibility of the work is that of the student. All tests should be completed during designated period. Since, enough time will be given to complete assignments, quizzes, reports and tests, extensions will not be given. Extenuating circumstances will be considered case by case.

MEANS OF ASSESSMENT:
Learning outcomes will be assessed by examinations, quizzes and graded assignments and discussions in lecture. Additionally each of the units completed in lab will be assessed by both lab report/quiz and lab practical.

TESTING POLICY FOR MATHEMATICS & SCIENCE DIVISION:
If you need special accommodations you must submit a request to the Disability Services Office in person (A430) or by phone at 972-273-3165 North Lake Disability Services for more information.

EVALUATION PROCEDURES:
LECTURE: Your lecture is based on a combination of lecture tests and assignments/discussions and quizzes on eCampus. Lecture average is 70% of the total grade (60% lecture tests including final + 5% lecture quizzes + 5% discussion board).

LECTURE TESTS: Students will take five lecture tests (Tests 1-5) online from home via Respondus Lockdown Browser with a Monitor. If you are given two attempts for any of these tests, average of the two grades will be considered. Each of these five tests will be timed and at the end of the given time limit will auto-submit. Each of these tests will account for 10% of the total lecture grade. The lowest grade of tests 1-5 will be dropped. Comprehensive Final lecture exam will also be given via Respondus Lockdown Browser with a Monitor from home. If a student would like to take the tests without the time limit, the test will be administered in any DCCC Testing Center or any proctored setting. Questions on the lecture final test will be over chapters 1-17. The lecture final test will account 20% of the total lecture grade. All lecture tests may have multiple choice and short answer questions related to each unit including the textbook chapter and labs. Lecture exams will count 60% of the total grade.

Lecture Test 1: Chapters 1, 2, 3, 4 – to be taken from home via Respondus Lockdown Browser with a Monitor
Lecture Test 2: Chapters 5, 6, 7 – to be taken from home via Respondus Lockdown Browser with a Monitor
Lecture Test 3: Chapters 8, 9, 10 – to be taken from home via Respondus Lockdown Browser with a Monitor
Lecture Test 4: Chapters 11, 12, 13 – to be taken from home via Respondus Lockdown Browser with a Monitor
Lecture Test 5: 14, 15, 16, 17 – to be taken from home via Respondus Lockdown Browser with a Monitor

Comprehensive Final: Chapters 1-17 - via Respondus Lockdown Browser with a Monitor

RESPONDUS LOCKDOWN BROWSER WITH A MONITOR: This program records complete tests taken by students. Students will need a webcam for this. This will ask you to show a Govt. issued ID and then it will match that with your face. It will ask you to show area around you to be sure that you don’t have any material around you. This will also block you from opening browsers other than your test browser in eCampus. http://ecampus.support.dcccd.edu/student-tutorials/. This link will show you details about this program.

ASSIGNMENTS AND QUIZZES FOR LECTURE: After each chapter, students will complete timed graded quizzes. Optional assignments or quizzes, if any, although not for grade, prepare students for graded quizzes and tests. These quizzes will count to 5% of the total lecture grade. Extra credit assignments, if given, will not exceed 2% of the total grade.
DISCUSSION BOARD: Students will participate in class Discussion Boards related to each unit. To receive full credit you must add a new post following the instructions for each Discussion Board and reply to at least one other student’s post. To add a new post, select the “+ Thread” button in the upper left corner of the discussion board screen. To respond, select “Reply” below the thread you are replying to. Anonymous messages on the discussion are NOT allowed. Discussion board may also be used for extra credit.

LABORATORY: Your lab grade is based on conducting actual experiments on your own, pre- and post-lab quizzes, lab reports and a final comprehensive lab practical. All quizzes may value from 2-20 points. Lab activity handouts should be downloaded from eScience website and uploaded onto eCampus after completion for grading. Directions for this will be given in eCampus. Lab activity submission will require pictures of the student with set-up and final results. Lab activity handouts should be uploaded onto eCampus after completion for grading. Lab activities may be combined to 20% and lab practical counts to 10% of the total grade. To be eligible to take the final lab practical, you must have completed at least 10 labs including labs 4, 5, 6, 7, 8, 10, 15, 11 and 12. Your lab grade is 30% of your total grade in Biology 1406. Lab activities, reports, pre-quizzes and post quizzes should be completed by the deadline. Lab practical may be combination of multiple choice and short answers and given at any DCCCD Testing Center or any proctored setting.

Important:

- Lab activities submitted within a given time line and correct format (.doc or .pdf) will be graded, others will not be graded.
- Pictures of the lab set up and results must be pasted within the lab document - not submitted separately.
- Post-lab quizzes completed without submitting lab activities in the correct format will not count.
- If students would like to work in groups of 2-3, they may do so. Each student must buy their own lab-kit. The results must be submitted by each student separately with pictures taken by each student not a group. Answers to the questions should NOT be exact copies. Students should answer pre- and post-lab questions and the reports in their own words or it will be considered as plagiarism. All participants of the group working together will get a grade “zero” on the complete assignment for plagiarism.
- Respondus Lockdown Browser downloading instructions for all tests:- http://ecampus.support.dcccd.edu/student-tutorials/
- A student caught opening webpages/browsers other than eCampus while taking a test from the proctored setting will receive a grade “zero” on that test.
- Before you begin a timed activity- a quiz or a test- be sure to have the electronic device fully charged and a reliable internet access. A second attempt will not be considered in these situations. If you have other unavoidable circumstances like electricity/internet outage in your area or problem with eCampus/Respondus be sure to document the incidence with supporting screenshots/emails from authorities etc. for a second chance.
- There will not be any make up tests. If there are any unavoidable circumstances, each will be evaluated.
**GRADING SCALE:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture: 70%</td>
<td></td>
</tr>
<tr>
<td>Lecture Tests (1-5- lowest grade dropped)</td>
<td>10%</td>
</tr>
<tr>
<td>Comprehensive Final lecture tests</td>
<td>20%</td>
</tr>
<tr>
<td>Lecture quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Laboratory 30%</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Lab practical</td>
<td>10%</td>
</tr>
<tr>
<td>Lab activities and quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Your final grade will be a combination of both lecture and lab, with lecture representing 70% and lab 30% of the final grade with:
- 90-100% for A
- 80 to 89% for B
- 70 to 79% for C
- 60 to 69% for D
- Below 59% for F
DISCIPLINE/ COURSE/ DEPARTMENT/POLICIES

Students are expected to fully participate in lecture class and laboratory activities. During testing in a proctored setting, the use of electronics is not permitted. All students are expected to abide by the college Student Code of Conduct.

NLC STUDENT SERVICES:

SCIENCE LEARNING CENTER, NLC Central Campus, P333 (972-273-3273)

Offers “Free Tutoring”, computers, models, quiet place to study, online learning material

MTWR 9am-7pm, F & Sa 9am -3:30pm

COUNSELING SERVICES

Counseling services for personal issues are provided to all students currently enrolled at North Lake College. The services are provided by licensed professionals 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. For appointments, call 972-273-3333 or visit A 311.

THE ACADEMIC SKILLS CENTER (ASC)

The ASC is designed to provide the following assistance to students:

- An ESOL lab with computer access
- Free tutoring for students enrolled in foreign language courses.
- The iRead Lab offers individual and small group tutoring, as well as workshops, to help current students improve their reading, study, and test taking skills.
- The Writing Center to help students clarify writing tasks, understand instructors’ requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, properly use and document sources, and improve their writing skills.
- The Online Writing Lab (OWL) allows students to submit papers to our writing tutors electronically and get feedback within 24-72 hours. The OWL can be accessed through eCampus.
  - After logging onto eCampus, click on the Community Tab at the top.
  - Type “Owl” in the search field and click “Go.”
  - Next, click on the double drop-down arrows next to “NLC-OWL2,” and then click on “Enroll.” Once enrolled, students can receive services from the OWL.

The Blazer Internet Lounge with 12 computers, additional open seating, and Wi-Fi Internet access.

For more information or to schedule a tutoring appointment: Come by A-332 or call 972-273-3089.

ECAMPUS

1. Class notes and announcements will be posted on the web on ECAMPUS at "ecampus.dcccd.edu".
2. You are expected to access "ECAMPUS" on a regular basis to be up to date with the class information.
3. Make sure you enter your email address. Let me know if you need help with "ECAMPUS".
4. All students can apply for a free email address/internet access at the Computing Center.

North Lake College TESTING CENTER

Central Campus (A425):972-273-3160

Central Campus Testing Schedule

Monday - Thursday: 8:30 a.m. - 8:00 p.m.
No tests will be issued after 7:00 p.m. Other cut-off times may be in effect for specific exams by the instructor's direction. All exams collected at 8:00 p.m.
Friday - Saturday: 8:30 a.m. - 3:30 p.m.
Other cut-off times may be in effect for specific exams by the instructor's direction.
No tests will be issued after 2:30 p.m. All exams collected at 3:30 p.m.
North Campus (N114) Testing Schedule

Monday - Thursday: 8:00 a.m. - 6:00 p.m.
No tests will be issued after 5:00 p.m.
Friday: 8:00 a.m. - 2:00 p.m.
No tests will be issued after 1:00 p.m.

Testing Policy for Mathematics & Science Division: Students taking tests in math and science will NOT be allowed to leave the testing center or the classroom during a test and return to complete the test unless they have a medical reason that is supported by a note from a doctor. If students leave, the attempt for that test will be considered complete without proper supporting documentation.

Information about other DCCCD Testing Centers:

<table>
<thead>
<tr>
<th>Testing Center</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brookhaven</td>
<td>972-860-4865</td>
</tr>
<tr>
<td>Cedar Valley</td>
<td>972-860-8118</td>
</tr>
<tr>
<td>Eastfield</td>
<td>972-860-7011</td>
</tr>
<tr>
<td>El Centro</td>
<td>214-860-2140</td>
</tr>
<tr>
<td>Mountain View</td>
<td>214-860-8571</td>
</tr>
<tr>
<td>North Lake</td>
<td>972-273-3160</td>
</tr>
<tr>
<td>Richland</td>
<td>972-238-6160</td>
</tr>
</tbody>
</table>

For all testing Centers:
If students need special accommodations they must submit a request to the Disability Services Office in person (A430) or by phone at 972-273-3165. Click on Disability Services for more information. Contact Testing Center for specific information.

A Test Request Form must be completed before entering the Testing center.

- Only battery operated 4 function, nonprogrammable scientific or TI83/TI 84 calculator are allowed (if permitted by instructor).
- Money for coin-return lockers (quarter). Please do not share lockers.

Important: Government- or school-issued photo identification is required & enforced.

If you plan to take tests at the Testing Center at Richland College, you have to let the instructor know.
INSTITUTIONAL POLICIES

ACADEMIC DISHONESTY:
Since the tests are through eCampus, you are NOT allowed to open any web browsers other than "eCampus". Any student caught browsing on websites other than the class website on eCampus will get a zero on that test.

- Lab activities submitted within a given time line will be graded, others will not be graded.
- If students would like to work in groups of 2-3, they may do so. The results they submit should be their own with their own picture. Answers of the questions should NOT be exact copies. Students should answer pre- and post-lab questions and the reports in their own words. If plagiarism is caught, all participants will get a grade “zero” on the complete assignment.
- While taking tests from the Testing Center, if students are caught opening webpages other than eCampus, they will be given a grade “zero” on the test.

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.

This instructor will take very seriously any academic dishonesty offence: an F in the class, suspension from the college, and a note on the student’s permanent record will be measures taken by this instructor in response to academic dishonesty. Cheating harms all students, the college, instructors, and society as a whole.

NOTIFICATION OF ABSENCE DUE TO RELIGIOUS HOLY DAY(S):
Students who will be absent from on campus activity 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.

WITHDRAWAL POLICY: If you are unable to complete this course, you must officially withdraw by: April 17, 2019. 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 attempt include courses taken at any DCCCD college since the fall 2002 semester. For further information, click on “Third Course Attempt”

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
Financial Aid Certification of Attendance:
You must attend and participate in your on-campus or online course(s) in order to receive federal financial aid. Your instructor is required by law to validate your attendance in your on-campus or online course in order for you to receive financial aid. You must participate in an academic related activity pertaining to the course such as but not limited to the following examples:

- initiating contact with your instructor to ask a question about the academic subject studied in the course;
- submitting an academic assignment;
- taking an exam;
- completing an interactive tutorial;
- participating in computer-assisted instruction;
- attending a study group that is assigned by the instructor;
- or participating in an online discussion about academic matters relating to the course.
- In an online class, simply logging in is not sufficient by itself to demonstrate academic attendance.

You must demonstrate that you are participating in your online class and are engaged in an academically related activity such as in the examples described above.

REPEATING THIS COURSE: Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not charged a higher tuition rate. Third attempts include courses taken at any Dallas County Community Colleges since the Fall 2002 Semester.

TSI Information: Actual TSI (Texas Success Initiative) is the state required assessment program has replaced TASP. The purpose of TSI is to insure students have the skills to be ready for college coursework. Dallas County Community College District is allowing students to decide when they will their developmental coursework. Demonstrated proficiency in skills through completion of DMAT 0093 a passing score on an assessment instrument is required to move to college level math classes. Students earn an “A”, “B”, or “C” in their developmental class in order to move to the next developmental level to a college level class.

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 drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an except Your campus counseling/advising center will give you more information on the allowable except Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses w “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of learning, including all seven of the Dallas County Community Colleges. For more information, you access: Coursedrops

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

**LEARNING ACTIVITIES, OUTCOMES, AND ASSESSMENT**

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Learning Outcome</th>
<th>Assessment</th>
<th>EEO’s &amp; CCIC’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a brief description of the learning activity.</td>
<td>Briefly list the specific learning outcomes / objectives for the activity.</td>
<td>How will the activity be assessed?</td>
<td>Which EEO’s and CCIC’s are addressed by the learning activity?</td>
</tr>
<tr>
<td>1. Demonstrate the understanding of the concepts of diffusion and osmosis.</td>
<td>Laboratory demonstration, practical application of the concepts</td>
<td>Activities will be assessed by a quiz. The class goal is 70% correct response.</td>
<td>EEO 1, 2 and CCIC 1, 2, 4</td>
</tr>
<tr>
<td>2. Describe the unique characteristics of water that make it essential to life on The Earth.</td>
<td>Assigned readings, lecture and discussion in class, related laboratory activities.</td>
<td>Ten question quiz to be administered after the completion of the topic. The class goal is 70% correct responses.</td>
<td>EEO 1, 2, and CCIC 1, 2, 4</td>
</tr>
<tr>
<td>3. Demonstrate an understanding of the significance of cellular respiration and the major energy transforming events of the process.</td>
<td>Assigned readings, lecture and discussion in class, play out the major steps of the aerobic respiratory pathway and related laboratory activities.</td>
<td>Ten question quiz to be administered after the completion of the topic. The class goal is 70% correct responses.</td>
<td>EEO 1, 2, 3 and CCIC 1, 2, 4</td>
</tr>
</tbody>
</table>

**PROGRAM –LEVEL OBJECTIVES FOR BIOL1406**

BIOL1406 develops the following objectives from the Texas Higher Education Coordinating Board:
- Communications: Written, oral
- Communications: Visual
- Critical Thinking
- Empirical & Quantitative Skills

The program level outcomes are assessed by a formal laboratory report on Enzyme Catalysis where students share hypothesis, materials, procedures, observations, analysis and conclusion.