This course syllabus is intended as a set of guidelines for Biology 1406. 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:

Dr. Vaishali Khamankar  
vkhamankar@dcccd.edu  
972-860-3910  
C-303D

Open Office Hours:  
MW  10am-12 pm and 2 – 3pm  
TR  11 am-12pm, 5:30-6pm and 9:30 – 10pm  
OR by appointment

Course Information  
Biology for Science Majors I  
Biology 1406  
Section number: 7142, 7145, 7146, 7147, 7148  
Credit hours: 4  
Class meeting time: Friday 8:30-11:20am

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 or Recommended Textbooks and Materials**


Laboratory Manual: 2007, Perry and Morton; Brooks/Cole Cengage Learning,

**Course Objectives**

1. Recognize the characteristics that distinguish living things from nonliving.
2. Identify the tools used in biological studies such as the microscope, experimental design, scientific problem solving and interrelations between science, technology and society.
3. Define the basic characteristics of matter, the atom, atomic theory and chemical bonding as it relates to the formation of the molecules of life.
4. Describe the unique characteristics of water that make it essential to life on earth.
5. 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.
6. Identify the four major groups of biomolecules, their chemical characteristics, the roles they play in life and their basic structural characteristics.
7. Recognize the cell as the structural and functional unit of life while reviewing the cell theory, cellular structure and function, Prokaryotic vs. Eukaryotic cells and the endosymbiotic theory.
8. Describe the fluid mosaic model of membrane structure.
10. Define energy, its role in chemical reaction and reaction mechanisms and the role of enzymes in biological reactions.
11. Review the process of cellular respiration and alternative respiratory pathways recognizing the essential nature of respiration in cellular processes.
12. Recognize the essential nature of photosynthesis to life on earth, identifying the major steps in the process and environmental factors that impact photosynthetic efficiency.
13. Explain the concept of cellular communications at the molecular level focusing on the transduction pathway.
14. Review the role of mitosis and meiosis in the lifecycles of eukaryotes, recognizing the basic steps in each process and identifying how they differ.
15. Identify the basic mechanisms of classical genetics and how they relate to the continuity of life.
16. 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.
17. Identify the process of protein synthesis and its role in the expression of the genetic code.

**Specific Course Learning Outcomes**

Students will master the concept of the cell as the structural and functional unit of life.
Students will master basic concepts of chemistry and atomic theory.
Students will understand the role of biological molecules in the chemistry of life.
Students will master basic concepts of cellular physiology such as cellular respiration and photosynthesis.
Students will understand basic principles of heredity.
Students will master basic concepts of molecular genetics including the structure and functions of DNA and RNA in relation to the production of proteins.

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

<table>
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<tr>
<th>1. Introduction</th>
<th>2. Basic Chemistry</th>
<th>3. Chemistry of Water</th>
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<tbody>
<tr>
<td>16. DNA</td>
<td>17. Protein Synthesis</td>
<td>18. Regulation of Gene Expression</td>
</tr>
</tbody>
</table>

**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 determined to be appropriate by the instructor.

**Attendance Policy:**

Lecture and laboratory attendance is required. All responsibility for make-up work is that of the student. Attendance will be taken at the beginning of both lecture and lab classes. 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.
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. If you leave, you are through testing. 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. Visit http://www.northlakecollege.edu/services-and-resources/advice-and-assistance/Pages/disability-services.aspx for more information.

Evaluation Procedures

Lecture: Your lecture is based on a combination of 6 lecture exams and 10 to 15 pre-quizzes. Quizzes may or may not be assigned and will be given at the beginning of class. If you are not there on time you cannot take the quiz. There is no makeup for missed quizzes. The lowest score for lecture exams 1-5 will be dropped from the point total for final grade determination. Each exam is valued at 100 points and each quiz at 10 points. Your lecture grade is based on a percentile of the exams and quizzes with 90-100 for an A, 80 to 89.99 for a B 70 to 79.99 for a C, 60 to 69.99 for a D and below 60 an F. Additional graded projects may be assigned during the semester, but the grade is still a percentile grade of the total possible accumulated points. Your lecture average is 70% of your total grade in Biology 1406. If a lecture exam is missed, make up must be completed within three 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, bereavement or other extreme situations as determined by the instructor, but not just because you are not ready for the exam. A second lecture exam cannot be made up except when due to extreme circumstances as approved by the instructor.

Laboratory: Your lab grade is based on four lab exams and a combination of lab reports, pre quizzes and post quizzes to be given during the semester. Each lecture exam and lab exam is valued at 100 points. Daily work may be a combination of a formal lab report, a pre-quiz and a post-quiz. Pre-quizs are valued at 5 points, post-quizzes at 10 points and formal lab reports at 20 points. Additional graded activities may be assigned during the semester. Your grade in lab is based on a percentile of all graded exams, quizzes, reports and other projects as may be assigned during the semester. The grade scale will be 90-100 for an A, 80 to 89.99 for a B 70 to 79.99 for a C, 60 to 69.99 for a D and below 60 an F. Your lab grade is 30% of your total grade in Biology 1406. There is no makeup for lab exams, pre-quizzes or post quizzes.

Grading Scale

Your final grade will be a combination of both lecture and lab, with lecture representing 70% and lab 30% of the final grade.
的学生需要准时参加所有课程，并积极参与课堂活动。当你来上课时，请计划留到最后一个小时。确保在进入课堂前处理好任何课外事务。

手机在上课期间应调成静音并收好。禁止在课堂上使用电子设备或做其他不适当的行为。手提电脑、笔记本等可在课堂上使用，但仅限于课堂用途。

所有电子设备在考试期间应关闭并收好。

所有学生都应遵守学院学生行为准则。

教员保留修改任何部分文档的权利，如果其认为对整体课程成功、评估、课程政策和课程完成是必要的。

**学院政策**

**学术不端行为**

学院行为准则禁止学术不端行为，并规定了对违反行为的处罚。根据该准则，"学术不端行为"包括（但不限于）作弊、抄袭、协助学术不端、剽窃和串通。1）学术事务副校长可以启动对学术不端行为学生的纪律诉讼。2）学术不端行为包括但不限于：考试作弊、剽窃和串通。3）考试作弊包括：a) 复制其他学生的考卷；b) 在考试中使用未经授权的材料；c) 在未得到许可的情况下与其他学生合作；d) 故意使用、购买、出售、偷窃、运输或请人出钱获取未考卷。e) 代替另一名学生考试或允许另一名学生代替您参加考试。f) 请人提供未考卷或有关未考卷的信息。"剽窃"意味着未经许可使用他人的工作（思想或词句）并未未经许可将这些工作纳入自己的书面工作。引用未标明的引文构成剽窃。4）"串通"意味着未经授权的合作。学术不端行为可能导致以下处罚，包括但不限于：1. 作业或课程的零分或降低分数。2. 批评。3. 学院停学。

**通知缺席宗教节日**

计划缺席课堂参加宗教节日的学生必须提前通知教员。请参阅学院行为准则中的学生职责部分。需要在指定时间内完成任何未完成的作业或参加考试。

**学术不端行为可能的结果**

学术不端行为可能的结果包括但不限于：1. 作业或课程的零分或降低分数。2. 批评。3. 学院停学。

**学术不端行为**

学生的学术不端行为可能导致的结果包括但不限于：1. 作业或课程的零分或降低分数。2. 批评。3. 学院停学。

**通知缺席宗教节日**

学生参加宗教节日需要提前通知教员。请参阅学院行为准则中的学生职责部分。你需要在指定时间内完成任何未完成的作业或参加考试。
REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (A430)
North Lake College provides academic accommodations to students with disabilities, as defined under ADA law. It is the student's choice and responsibility to initiate any request for accommodations. If you are a student with a disability who requires such ADA accommodations, please contact North Lake College's Disability Services Office in person (A430) or by phone at 972-273-3165.
http://www.northlakecollege.edu/resources/disability

ADMINISTRATIVE WITHDRAWAL
Students with valid extenuating circumstances may be eligible for an administrative withdrawal by the Dean of the Division in which the course or courses are taught. An administrative withdrawal will not be awarded to students who simply fail to withdraw prior to the last day to receive a “W.” The request for an administrative withdrawal must be made in writing to the Dean of the Division with any supporting documentation attached. This must occur before the last official day of the semester.

DROP POLICY
If you are unable to complete this course, you must officially withdraw by Thursday, November 15, 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 online to:
http://www.DCCCD.edu/thirdcourseattempt .

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

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 Federal Student Aid) on the web at:
http://www.fafsa.ed.gov

COUNSELING SERVICES (A430)
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 972-273-333 or visit A 430.

**THE ACADEMIC SKILLS CENTER (A332)**
The Academic Skills Center (ASC) is designed to provide assistance to students in the following areas:

- Labs for students enrolled in foreign language, Developmental Reading, and ESOL courses. One-on-one tutoring is available.
- The Writing Center 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" papers, tutors focus on helping students develop 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 on to 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.

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

**TESTING CENTER (A 425)**
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.
   - No tests will be issued after 2:30 p.m. Other cut-off times may be in effect for specific exams by the instructor’s direction. All exams collected at 3:30 p.m.
Sunday – CLOSED

If your instructor requires you to complete an exam in the Testing Center, be sure to have the following information when you request your test:

1. Instructor’s name
2. Subject, course number, and section number (ex: Speech 1311.7011)
3. Exam number (1st, 2nd, 3rd, etc.)
4. Exam deadline (Get this information from your instructor. The testing staff cannot look up this information on computers).

You should also bring the following supplies:

1. Pencil
2. A Test Request Form must be completed before entering the Testing Center.
4. Government or school issued photo identification is required & enforced.

You may not bring personal items into the Testing Center. This includes bags, cell phones, and pagers.

Please show courteous and cooperative behavior while using the services provided by the Testing Center.

DO NOT bring children to the Testing Center. You must make arrangements for the care of your children prior
to your exam date. The police department will be notified of any unattended children.

DO NOT take any testing materials with you when you leave the Testing Center. This includes the test, answers, charts, scratch paper. These items will be attached to your test. **To do so constitutes Academic Dishonesty.**

Questions? Please visit the Testing Center (A 425) or call 972-273-3160.

**Division Policy on Bathroom Breaks during Testing.**

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. If you leave you are through testing. If you need special accommodations, talk to your instructor or the Disability Services Office. Accommodations can be made. You can contact the Disability Services Office in person (A430) or by phone at 972-273-3165. For more information, visit [http://www.northlakecollege.edu/services-and-resources/advice-and-assistance/Pages/disability-services.aspx](http://www.northlakecollege.edu/services-and-resources/advice-and-assistance/Pages/disability-services.aspx)

**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 *all* 6 of the 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 all 6 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**
<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Learning Outcomes</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></td>
</tr>
<tr>
<td>1. Demonstrate the correct use of the compound light microscope; the ability to set up, locate a specimen, focus correctly and prepare the microscope for storage after use.</td>
<td>Laboratory demonstration, practical application by use of the microscope through guided activities, practice with microscope use in laboratory.</td>
<td>Timed individual demonstration of use. Correct application on 80% of measured items. Evaluation based on a rubric.</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 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 response.</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 an understanding of 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 response.</td>
<td>EEO 1, 2, 3 and CCIC 1, 2, 4</td>
</tr>
</tbody>
</table>