Course Description. Biology 1406, Biology for Majors I, is the first semester of a two-semester sequence designed for prospective Biology majors and for those students requiring a laboratory science for science majors. Students are expected to possess a reading, writing and speaking knowledge of the English language appropriate to college level work in the sciences, and to possess computational skills through simple quadratic equations and exponents. This course presents the following topics: Introduction to Chemistry, Cellular Chemistry, Cell Morphology and Physiology, Photosynthesis, Cell Respiration, DNA, RNA, Protein synthesis, Prokaryotic and Eukaryotic Gene Regulation, Classical Genetics, and Evolution. Laboratory experiments and exercises focus on principles and techniques of Cell and Molecular Biology. The Biology department and the instructor reserve the right to modify any and all parts of the course at any time during the semester to facilitate the learning process.

Instructors. Several different instructors teach this course. Each instructor will notify you of his/her office hours or access hours and an e-mail address if available. You may leave a message for your instructor with the Science/Mathematics division office, K224, by telephone (972-860-4750), or in person, between the hours of 8:30 am and 8:30 pm, Monday through Thursday, and 8:30am to 4:30pm on Friday. Appointments may be made by students with the instructors on an individual basis during their office hours. These appointments will be restricted to course subject matter. Your instructor does not provide tutoring. Tutoring services may be located in the S Bldg. Additional help is available in the Biology Resource Center where hours of tutoring for your particular course will be posted.

Objectives. Students are expected to expand their awareness of their relation to the natural world and the role of biology in social, economic, political, and ethical affairs. All majors in the various fields of science are expected to understand the methods by which scientific knowledge is obtained. Specific course objectives will be provided in class.

Learning Outcomes for Biology 1406

The Texas Higher Education Coordinating Board (THECB) has specified the following as preferred student learning outcomes for this course. During the semester, regularly scheduled exams will include questions concerning these outcomes. As exams are graded, information on class performance on these items will be recorded for statistical purposes.

(Lecture)
1. Describe the characteristics of life.
2. Explain the reasoning methods used by scientists.
3. Identify the basic properties of substances needed for life
4. Compare and contrast the structures, reproduction, and general characteristics of eukaryotes, prokaryotes, and viruses.
Describe the structure of cell membranes and the rules which govern the movement of materials across them.

Identify the substrates, products, and general features of metabolism in prokaryotes and eukaryotes.

Identify the general rules of inheritance in higher organisms and solve classical (Mendelian) genetics problems.

Identify the chemical structures, synthesis, degradation, and regulation of nucleic acids, proteins, lipids, and carbohydrates.

Describe the unity and diversity of life and the basic principles of organic evolution

(Laboratory)

Upon successful completion of the laboratory portion of this course, students will

1. Be able to apply scientific reasoning, and to utilize scientific tools (e.g. the microscope) to collect and analyze data.

2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory

3. Describe the characteristics of life.

4. Explain the reasoning used by scientists.

5. Identify the basic properties of substances needed or life.

6. Compare/contrast the structures, reproduction, and major characteristics of prokaryotes, eukaryotes, and viruses.

7. Describe cell membranes and the movement of molecules across them.

8. Identify the substrates, products, and important chemical pathways in metabolism.

9. Identify various principles of inheritance, and solve classical problems using these principles.

10. Identify the structures, synthesis, and degradation of nucleic acids, proteins, carbohydrates, and lipids.

11. Describe examples of the unity and diversity of life and the evidence for organic evolution.

Texts

(Required):


3. Students will need to provide their own laboratory gloves. These will no longer be provided by Brookhaven College.
Activities

1. We will meet for lecture/discussion one to two times per week to cover the basic concepts of the course. Lecture examinations will be given in class or in the campus testing center located in the S-building.
2. Each student will complete a laboratory topic each week and be tested intermittently during the semester by laboratory examinations and laboratory quizzes during the scheduled laboratory session. Lab exams, quizzes and any homework are graded by your laboratory instructor, and the grades given to your lecture professor.
3. All examinations and quizzes are written by the department and rewritten each semester.

Examinations and Grades

Your final grade will be determined on the basis of points accumulated during the semester on three types of evaluation instruments: lecture examinations, laboratory practical examinations and laboratory quizzes. Lecture examinations will be comprised of multiple choice questions. The exams will be given in class. Laboratory examinations and quizzes, also comprised of multiple choice questions, will be given during the laboratory period.

- Five lecture examinations @ 100 points each..................400 pts. (drop the lowest)
- One Comprehensive Final examination @ 200 pts........... 200
- Two laboratory examinations @ 100 pts each...............200
- Ten laboratory quizzes @ 10 pts each........................100
- Five laboratory Reports @ 10 pts each...................... 50
- One laboratory Report @ 50 pts .................................. 50
- Total Possible Points.............................................. 1,000 pts.

A letter grade will be assigned as the final course grade; determined as a percentage of the total. **Students must pass the laboratory portion of the course in order to receive a passing grade for the semester. Students must pass the lecture portion of the course AND MUST PASS THE COMPREHENSIVE FINAL EXAMINATION in order to receive a passing grade in the course.**

A = 90 - 100%
B = 80 - 89
C = 70 - 79
D = 60 - 69
F = 0 - 59

Make-up Examinations

There will be no makeup examinations in sections 23001, 23005, 23006 of Biology 1406. You will be given advanced notice of each exam and ample opportunity to take it. Plan carefully.

Biology Resource Lab

The “Resource Lab” is a tutoring and laboratory review component of the course. All laboratory sessions will be staffed to help enrolled biology students with their laboratory, lecture and text material. This is a place where you may receive answers to your questions and help with difficult reading and homework assignments, in addition to traditional lab material review prior to a laboratory practical examination. (Room: X - 2030) Individual tutoring may be scheduled with the Student Services tutoring office in the S-building.
**Attendance**

Students are expected to attend, on time, all classes in which they are enrolled. **Excessive absence will result in an administrative drop from the course.** You have the responsibility to attend class and to consult with the instructor when an absence occurs.

**Holidays.** Students desiring to observe a religious holy day or days which will result in absence from class, must notify their instructor in writing for each class, no later than the 15th calendar day after the first class day of the semester in which the absence will occur. The student is required to complete any assignments that may have been missed, within a reasonable time.

**Lateral transfers.** No lateral transfers will be granted without written documentation of need. Students who wish to complete a lateral transfer to another biology course must consult the instructors involved. Transfers can only take place during the second and third week of class. Circumstances arising later in the semester, that require a section transfer, may be rectified by the instructor individually.

**Withdrawal.** If necessary, it is the responsibility of the student to withdraw from the course. This can be accomplished in the registrar’s office before the last withdrawal date.

**On examination days,** no examinations will be handed out after the first student has completed the exam and left the classroom. Do not be late to an exam.

**Academic Dishonesty**

Academic dishonesty is the unauthorized giving or receiving of assistance on any graded assignment. All students are encouraged to examine the Brookhaven College Catalog section on Academic Dishonesty in the Code of Student Conduct. Cheating in any form can be grounds for a performance grade of “F”, removal from the course, a block placed on your transcripts, a record of the incident placed in your permanent file and Academic/Disciplinary suspension. Academic dishonesty is interpreted as theft. **If you are in doubt about the meaning of academic dishonesty, ask your instructor.**

**Additional Information**

1. Please bring your textbook to lecture.
2. Please notify the instructor if you have been absent.
3. **DO NOT USE CELL PHONES, CELL PHONE CAMERAS, iPADS, ELECTRONIC TABLETS, NOTEBOOKS, OR LAPTOPS IN CLASS. PENALTIES INCLUDE ADMINISTRATIVE REMOVAL FROM THE CLASS. THE ONLY EXCEPTION TO THIS POLICY IS AN ADA ACCOMMODATION.** If you must leave your cell phone ON for reasons of work, family, etc. be sure it is in vibrate mode. **DO NOT TAKE CALLS IN CLASS...IF YOU MUST TAKE A CALL LEAVE THE ROOM TO DO SO. Do not disrupt the class more than once per class in this manner.**
4. **VISIBLE PRESENCE OF THESE DEVICES DURING AN EXAMINATION WILL BE INTERPRETED AS AN ATTEMPT TO CHEAT, (SEE ACADEMIC DISHONESTY ABOVE)**
5. **THE FACULTY RESERVE THE RIGHT TO ALTER OR MODIFY THIS SYLLABUS AT ANY TIME WITH APPROPRIATE NOTICE. YOU ARE LIABLE FOR ALL ANNOUNCEMENTS MADE IN LECTURE AND LAB.**

SEE ADDITIONAL IMPORTANT INSTITUTIONAL POLICIES LISTED BELOW. ANY CHANGES TO THESE OR OTHER POLICIES WILL BE ANNOUNCED IN CLASS.
Important Institutional Policies Affecting Students

**Drop/Withdraw** - Students who decide not to attend class must complete a formal withdrawal. Failure to do so will result in a performance grade of “F”. A student contemplating withdrawal should consult with the course instructor to determine whether there are alternatives available. Note that withdrawal may affect student Financial Aid status. **Students enrolling for the first time after 2007 are allowed six drops during their undergraduate years.** Exceptions include withdrawal from the College and active military deployment among others. For full policy details concerning course drops, consult www1.dcccd.edu/coursedrops.

**Repeating Courses** - When a student enrolls in a credit class for the third time, additional tuition will be charged. For details see www1.dcccd.edu/catalog/ss/oep/third_attempt.cfm?loc=econ.

**International Students** - Students with F-1 status may not drop courses without the permission of an International Student Advisor. For details, go to the Multicultural Center, Room S-136 in the Student Services Building, or call 972-860-4192.

**Financial Aid and Attendance** - Students receiving financial aid may be subject to loss of financial aid due to poor attendance or non-attendance. In some instances, failure to attend will result in repayment of the aid. Consult the Student Office of Financial Aid in the S-Building for details. Students who expect to be absent for any reason are obliged to inform the course instructor in advance of the absence, or, a soon as possible otherwise. (also, see NO MAKEUP policy. **INTERNATIONAL STUDENTS NOTE:** Students on an F-1 Visa cannot withdraw from classes without jeopardizing their official status. **You must NOT withdraw from any class without the permission of an International Student Advisor** in the Multicultural Center, Rm S-124, 972-860-4192.

**Religious Holidays** - Students who expect to miss class due to religious observances must notify the course instructor in writing, (or electronically), within 15 days of the beginning of the semester in which the absences will occur, i.e. by **09-12-16**, Students will then be allowed a reasonable amount of time to make up missed work. Each case will be handled on an individual basis.

**Disabilities Accommodation** - Brookhaven College will make every reasonable attempt, (as specified by the Americans with Disabilities Act), to accommodate students with disabilities. Students seeking accommodation must validate their disabilities with the Office of Disabilities Accommodation, (room S-136 Student Services Bldg.). Documentation of the required accommodation should be presented to the instructor at the first class meeting. For more information go to bhcADAServices@dcccd.edu, or, call 972-860-4190.

**Academic Integrity / Academic Misconduct** - Students in the sciences and the allied health sciences are held to a particularly high standard of ethical conduct for obvious reasons. Cheating in any form will result in an immediate block against drops, a grade of “F” in the course, and a notation in the student’s permanent file. In general, cheating is defined as ANY unauthorized giving or receiving of assistance on a graded exercise. If you have any doubt about what constitutes academic dishonesty, ask your instructor, or consult the Code of Student Conduct at www1.dcccd.edu/catalog/ss/code.cfm.

**Privacy Rights** - Portions of Students’ academic information are protected under the provisions of the Federal
## Spring 2017 BIOL 1406 Schedule and Deadlines

<table>
<thead>
<tr>
<th>Week</th>
<th>Start Date</th>
<th>Lab Topic</th>
<th>Activity</th>
<th>Quiz/Evaluation (Due at 11:59 PM the day before lab)</th>
<th>Report (Due at 11:59 PM the day before lab)</th>
<th>Lecture Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>1/17/2017</td>
<td>Safety &amp; Scientific Investigation</td>
<td>1</td>
<td>Safety (Due the Day of Lab at 11:59 PM)</td>
<td></td>
<td>Themes, Chemical Context</td>
<td>1,2</td>
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<tr>
<td>2</td>
<td>1/23/2017</td>
<td>Microscope &amp; Cells</td>
<td>2</td>
<td>Scientific Investigation (Post-Lab) &amp; Microscope &amp; Cells (Pre-Lab)</td>
<td></td>
<td>Water, Carbon</td>
<td>3,4</td>
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<tr>
<td>3</td>
<td>1/30/2017</td>
<td>Diffusion &amp; Osmosis</td>
<td>3</td>
<td>Microscope &amp; Cells (Post-Lab) &amp; Diffusion &amp; Osmosis (Membranes) (Pre-Lab)</td>
<td></td>
<td>Biomolecules/ <strong>EXAM 1</strong> Cell</td>
<td>5,6</td>
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<tr>
<td>4</td>
<td>2/6/2017</td>
<td>Diffusion &amp; Osmosis Review of Results; Enzymes Control Experiment and Assigned Experiment Hypothesis Generation</td>
<td>3 &amp; 4</td>
<td>Diffusion &amp; Osmosis (Membranes) (Post-Lab) &amp; Enzymes (Pre-Lab)</td>
<td>Materials &amp; Methods - Diffusion and Osmosis (Exercise 2 or 4)</td>
<td>Cell (contd.) / Membrane transport</td>
<td>6,7</td>
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<tr>
<td>5</td>
<td>2/13/2017</td>
<td>Enzymes Assigned Experiment and Presentations of Results</td>
<td>4</td>
<td>NO QUIZ - Teamwork Evaluation Due Next Week</td>
<td>Hypothesis - Diffusion and Osmosis (Exercise 2 or 4)</td>
<td><strong>EXAM 2</strong></td>
<td>8,9</td>
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<tr>
<td></td>
<td>Date</td>
<td>Activity</td>
<td>Number</td>
<td>Description</td>
<td>Topic</td>
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<tr>
<td>6**</td>
<td>2/20/2017</td>
<td>Enzymes Part II</td>
<td>5</td>
<td>Teamwork Evaluation</td>
<td>Introduction (with citations) - Enzymes (control + assigned experiment)</td>
<td>10</td>
<td></td>
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<tr>
<td>7</td>
<td>2/27/2017</td>
<td>Photosynthesis</td>
<td>6</td>
<td>Enzymes (Post-Lab) &amp; Photosynthesis (Pre-Lab)</td>
<td>Results - Photosynthesis (Exercise 3)</td>
<td>16</td>
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<tr>
<td>8</td>
<td>3/6/2017</td>
<td>Practical 1</td>
<td>-</td>
<td>-</td>
<td>Molecular Basis of Inheritance</td>
<td>17</td>
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<tr>
<td>-</td>
<td>3/13/2017</td>
<td>SPRING BREAK</td>
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<td>9</td>
<td>3/20/2017</td>
<td>Cellular Fermentation</td>
<td>7 &amp; 13</td>
<td>Photosynthesis (Post-Lab) &amp; Cellular Respiration &amp; Fermentation (Pre-Lab)</td>
<td>Discussion (with citations) - Fermentation (Exercise 2)</td>
<td>18</td>
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<tr>
<td>10</td>
<td>3/27/2017</td>
<td>DNA, RNA, Proteins &amp; Viruses</td>
<td>8</td>
<td>Cellular Respiration &amp; Fermentation (Post-Lab) &amp; DNA, RNA, Proteins &amp; Viruses (Pre-Lab)</td>
<td>Complete Lab Report (with citations) - Fermentation (Exercise 2) or Enzymes (control + assigned experiment)</td>
<td>19</td>
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<tr>
<td>11</td>
<td>4/3/2017</td>
<td>Bacteria Lab</td>
<td>9</td>
<td>Bacteria (Post-Lab) &amp; Molecular Biology (Pre-Lab)</td>
<td>Viruses</td>
<td>11</td>
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<tr>
<td>12***</td>
<td>4/10/2017</td>
<td>Molecular Biology</td>
<td>10</td>
<td>Molecular Biology (Post-Lab) &amp; Mitosis &amp; Meiosis (Pre-Lab)</td>
<td>Cell Communication/ Cell cycle</td>
<td>12</td>
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<td>Last day to drop with Grade of “W”)</td>
<td>13</td>
<td>4/17/2017</td>
<td>Mendelian Genetics</td>
<td>Mitosis &amp; Meiosis (Post-Lab) &amp; Mendelian Genetics (Pre-Lab)</td>
<td>EXAM 4/ Meiosis</td>
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<td>14</td>
<td>4/24/2017</td>
<td>Human Genetics</td>
<td>12</td>
<td>Mendelian Genetics (Post-Lab) &amp; Human Genetics (Pre-Lab)</td>
<td>Mendelian Inheritance</td>
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<tr>
<td>15</td>
<td>5/1/2017</td>
<td>Practical 2</td>
<td>-</td>
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<td>Chromosomal Basis of Heredity/EXAM 5</td>
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<tr>
<td>5/8-5/11</td>
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<td>COMPREHENSIVE LECTURE FINAL (IN CLASS)</td>
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*Classes Begin Tuesday - Monday Sections Attend Lab with Another Section
**TCCTA Meeting - All Thursday Sections and Friday Sections Attend Lab with Another Section
***Spring Holiday - Friday Sections Attend Lab with Another Section

**STUDENTS ARE LIABLE FOR ALL ANNOUNCED CHANGES TO THIS SCHEDULE INCLUDING EXAM DATES. THIS INCLUDES CHANGES ANNOUNCED IN YOUR ABSENCE.