Hazard Community and Technical College
Course Syllabus

COURSE NUMBER AND SECTION: BIO 151: Principles of Biology I Lab (45z1)
Summer I Online

Instructor Contact Information
Instructor Name/Title: Dr. Paul B. Currie, Professor
Office Hours: By Appointment
Office Location: JCC 232, Hwy 15, Hazard
Phone Number: 606.487.3246
Email Address: paul.currie@kctcs.edu

Course Information
Course Description
Includes studies of cellular and molecular biology.
Prerequisites or Corequisites
BIO 150

Start Date:
Midterm/Last Date to Withdraw Without Instructor Permission: July 1st, 2019
Last Date to Withdraw with Instructor Approval: July 26th, 2019

Textbook Information and Supplies
1. Late Nite Labs Access (see blackboard)
2. A Scientific Calculator (cell phones turned long ways have this function)

Course Competencies/Student Learning Outcomes
1. Apply the scientific method to laboratory experiences.
2. Describe the characteristics of life and the major theories of its origin.
3. Demonstrate knowledge of the chemistry of biomolecules.
4. Describe the basic unit of life, the cell, including structure and function of prokaryotic and eukaryotic cells.
5. Describe the structure and function of cellular membranes, including types of transport and membrane potential.
6. Analyze energy dynamics (ATP) and its relation to chemical reactions.
7. Communicate knowledge of enzymes, their function and importance to life.
8. Describe the two major life processes, cellular respiration and photosynthesis, and their impact on living organisms.
9. Demonstrate knowledge of sexual and asexual cell reproduction.
10. Analyze Mendelian genetics, including basic genetic crosses and processes of inheritance.
11. Describe the molecular basis of inheritance, including the structure of DNA and the gene, and the processes of replication, transcription and translation.
12. Demonstrate knowledge of genetic engineering techniques and applications, and the moral and ethical implications.
13. Describe evolution, including natural selection, as the unifying theory of life.
General Education Course Competencies/Student Learning Outcomes

Natural Sciences (NS)
1. Demonstrate an understanding of the methods of science inquiry.
2. Explain basic concepts and principles in one or more of the sciences.
3. Apply scientific principles to interpret and make predictions in one or more of the sciences.
4. Explain how scientific principles relate to issues of personal and/or public importance.
5. Conduct a hands-on project using scientific principles (category experience satisfied by this course).

Course Structure, Evaluation, and Grading Methods
This course consists of a series of lab experiments. Late Nite Labs (LNL) are virtual labs conducted using the Late Nite Labs website.

Descriptions of Graded Assignments
Multiple choice questions are associated with most of the labs in Late Nite Labs and cover information from that lab. These assignments become unavailable after their due date. A single microscope lab will be given where you display your ability to use a microscope. A Midterm Grade is given to you as an indicator of your progress for the material due at the midterm. This grade should not be taken to be equivalent to your final grade as you still have 50% or more of the assignments left to complete before the term is finished. All assignments are due by the end of Day on their specified due date.

Grading Policy/Scale
Grading Summary

<table>
<thead>
<tr>
<th>Method</th>
<th>Number</th>
<th>Points Each</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Choice (LNL)</td>
<td>19</td>
<td>100</td>
<td>1900</td>
</tr>
<tr>
<td>Microscope Lab</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>2000</td>
</tr>
</tbody>
</table>

GRADING SCALE:
- 90% -100% =A
- 80% - 89% =B
- 70% - 79% =C
- 60% - 69% =D
- Below 60% =E

Class Policies/Procedures

Inclement Weather Class Policy/Procedure
During periods of inclement weather, HCTC will either open at 11:00 or be closed. On days that HCTC opens at 11:00 a.m., all courses scheduled BEFORE 11:00 a.m., will be canceled. Decisions regarding evening classes will be made by 4:00 p.m. Check local radio, TV stations, or the HCTC website for information. Weather related situations will be evaluated on an individual basis.
General Class Make-up, Late Assignment Class Policy/Procedure
Though there are specific due dates for the course, all assignments are available to the course start date, and it is in your best interest to not wait until the last minute to do the course work. You are even encouraged to work ahead when possible. Policies regarding late assignments are listed above in the “Descriptions of Graded Assignments” section. Exceptions, including those that are weather-related, will be considered on a case by case basis. No assignments will be accepted after 11:59 pm Eastern on July 30th, 2019.

Attendance Class Policy/Procedure
As this is a web-based class, there is no formal attendance; however, students are expected to complete the work in the time allotted. Any student who has not set up a time for the microscope lab with the instructor by June 10th, 2019 will be reported as a “no-show” under KCTCS policy.

Withdrawal Class Policy/Procedure
A student may officially withdraw from any class up to and including the date of midterm with a W grade assigned to the student’s record. After midterm and through the last class day (not including the period for final), students will need instructor’s permission. Please refer to the following for instructions on request withdrawal: https://hazard.kctcs.edu/current-students/media/records/Online%20Withdraw_Drop%20Process%20Guide%20for%20Students.pdf

Accommodations Procedure
HCTC recognizes that a disability may preclude a student from demonstrating required course competencies or from completing course requirements. In compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, any qualified student with disabilities may request appropriate course accommodations to ensure that full benefits are received and that the instructor is aware and can make the proper adjustments. Students are encouraged to meet with the Disability Services Representative to develop and complete an Accommodations Plan.

Julie Caudill, HCTC Disabilities Services Representative
Phone: 606-487-3486 and Email: jcaudill0129@kctcs.edu

Appeals Process
Always begin the informal process by talking to your instructor. If issues cannot be resolved, then talk with the Dean/Supervisor (see below for contact information) of the faculty member. For information about academic rights, academic offenses, and the student’s formal right to appeal, review the KCTCS Code of Student Conduct.

Dean/Supervisor Contact Information
Dean/Supervisor: Leila Smith
Office Location: Smith Admin 101A, Lees College Campus
Phone Number: 606.487.3504
Email Address: Leila.smith@kctcs.edu

Approved Course Outline:
I. Scientific Method
   a. Experimental Design
b. Data Analysis

II. Chemical Components of Cells
   a. Carbohydrates
   b. Lipids
   c. Proteins
   d. Nucleic Acids

III. Enzymes
   a. Kinetics
   b. Structure
   c. Regulation

IV. Microscopes and Cells
   a. Use of Microscope
   b. Cell Observation
   c. Slide Preparation

V. Cell Cycle
   a. Mitosis
   b. Meiosis

VI. Membrane Transport
   a. Passive Transport
   b. Active Transport

VII. Microbiology
   a. Bacteria
   b. Fungi

VIII. Energy Transformations
   a. Cell Respiration
   b. Photosynthesis
   c. Fermentation

IX. Molecular Genetics
   a. Restriction Analysis
   b. Transformation of E. Coli
   c. Electrophoresis

X. Mendelian Genetics
   a. Monohybrid Cross
   b. Dihybrid Cross

XI. Evolution
   a. Population Genetics
   b. Natural Selection

**Plagiarism Policy:**
Students are expected to submit their work in their words or site sources by ACS standards (http://library.williams.edu/citing/styles/acs.php).

**Additional Syllabus Information:**
Review the HCTC Website: (from HCTC Website Click Current Students > Academic Resources > Syllabus Information)

Print Version of URLs listed in the syllabus:
Academic Calendar:  https://hazard.kctcs.edu/education-training/academic-calendar/index.aspx
HCTC Syllabus Website:  
https://hazard.kctcs.edu/current-students/academic-resources/syllabus_information.aspx
Student Code of Conduct:  https://kctcs.edu/current-students/academic-resources/code-of-student-conduct.aspx