Houston Community College--Southwest

Syllabus for General Biology I--Spring 2011

Instructor: Dr. Emily Brantley
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Course Title: Biol.1406 General Biology I
CRN: 76658 **Credit Hours**: 4
Class Time: MW: 5:30-10:00 PM West Loop Center Rm C222;
TTH 5:30-10:00 PM West Loop Center Rm 162
Text Book: BIOLOGY: Eighth Edition, Neil A. Campbell & Jane B. Reece
Laboratory Manual: Biology 1406, Laboratory manual. HCCS- Southwest, 3rd edition

COURSE DESCRIPTION
This course includes a study of biological chemistry, biological processes, cellular morphology, metabolism, genetics, and molecular biology. Biology 1406 is the first half of a two semester sequence that is intended specifically for life science majors. It will satisfy the freshman biology requirements for biology majors, the pre-professional fields and other allied health sciences, while satisfying the natural science requirement for majors in most other fields as well. One year of high school biology/high school chemistry is recommended.

COURSE PREREQUISITE: One year of high school biology/high school chemistry is recommended.

COURSE GOAL: To help the student in becoming a scientifically aware individual, and to prepare the student for advanced course work in biology.

BIOLOGY PROGRAM STUDENT LEARNING OUTCOMES (PSLO):
Program SLO #1 -
To recognize, identify, and describe the basic structures and functions associated with most life forms.

Program SLO #2 -
To develop basic laboratory techniques appropriate to the field of Biology.

Program SLO #3 -
To develop study skills and habits appropriate for pre-professional students interested in health-related fields.

STUDENT LEARNING OUTCOMES (SLO):
The following Student Learning Outcomes with their associated assessment criteria are not meant to be all inclusive, and are meant to be used along with all other course learning outcomes and assessment devices, listed under Course Objectives, in the determination of the student's final course grade. Completion of the specific Student Learning Outcomes listed below, at any assessment grading level, **does**

NOT and will NOT guarantee the student that final course grade at the end of the semester!

Bio 1406 SLO#1
The student will be able to recognize the basic structure and describe the function of eukaryotic cellular organelles and cell systems.
PSLO #1

Bio 1406 SLO#2
Given a DNA or RNA base sequence, the student will be able to deduce:
a. the sequence of the complementary DNA strand
b. the sequence of the complementary messenger RNA strand
c. complementary codons and/or anticodons
d. the proper amino acid sequence in a peptide by using a supplied table of genetic code.
PSLO #1

Bio 1406 SLO#3
The student will be able to explain the synthesis and properties of
a. carbohydrates
b. lipids
c. proteins
d. nucleic acids
PSLO #1

Bio 1406 SLO#4
The student will be able to devise an experiment containing the correct experimental test points along with correct positive and negative controls.
PSLO #2

Bio 1406 SLO#5
The student will exhibit competence with bringing the brightfield microscope into focus.
PSLO #2

Bio 1406 SLO#6
The student will develop the habit of reliable attendance by being absent from class no more than four times per semester.
PSLO #3

Bio 1406 SLO#7
The student will demonstrate punctuality in the submission of class assignments on their due date.
PSLO #3

Week	Date	Lecture and Lab Schedule
1	06/06 M	Ch.1 Introduction: Themes in the Study of Life Ch.2 The Chemical Context of Life Ch.3 Water and the Fitness of the Environment Ch.4 Carbon and the Molecular Diversity of Life
	06/07 T	Lab Safety Lab 1. Basic Chemistry Lab 2. The Properties of Water
	06/08 W	Ch.5 The Structure and Function of Macromolecules Ch.6 A Tour of the Cell Ch.7 Membrane Structure and Function
	06/09 TH	Lab. 3 Biochemistry Lab. 4 The care and feeding of the microscope Lab. 5 Cell structure
2	**06/13 M**	**LECTURE EXAM 1 (1-7)**
	06/14 T	Lab. 6 Diffusion and Osmosis Lab. 7 Enzymes
	06/15 W	Ch.8 An Introduction to Metabolism Ch.9 Cellular Respiration: Harvesting Chemical Energy Ch.10 Photosynthesis
	06/16 TH	Lab. 8 Respiration Lab. 9.Photosynthesis
3	**06/20 M**	**LECTURE EXAM 2 (8-10)** Ch.11 Cell Communication Ch.12 The Cell Cycle
	06/21 T	**LAB EXAM 1 (1-9)** Lab. 10.Cell division
	06/22 W	Ch.13 Meiosis and Sexual Life Cycles Ch.14 Mendel and the Gene Idea Ch.15 The Chromosomal Basis of Inheritance
	06/23 TH	Lab. 11 Genetics Lab. 12 DNA to Protein
4	06/27 M	**LECTURE EXAM 3 (11-15)**
	06/28 T	Ch.16 The Molecular Basis of Inheritance Ch.17 From Gene to Protein Ch.18 Regulation of Gene Expression
	06/29 W	**Last Day for Student/Admin Withdrawals- 4:30pm** Ch.19 Viruses Ch.20 Biotechnology Ch. 21 Genomes and their Evolution
	06/30 TH	Lab. 13 Biotechnology and DNA extraction
5	07/04 M	Independence Day Holiday
	07/05 T	**LAB FINAL EXAM (10-13)**
	07/06 W	**COMPREHENSIVE FINAL EXAM**

The syllabus is subject to change at any time!

Instructor's contact:
Email: emily.brantley@hccs.edu
You can access the syllabus and lecture notes at http://learning.swc.hccs.edu.

Instructor Requirements:

Basic requirements
Students should be on time for class and be prepared with required materials including textbook and lab manual. Full class attendance is required including lecture and lab portions. Full attention during lecture and lab is required. **No cell phones are allowed in use at any time as it disturbs the class. Audible cell phone ringing may result in your removal from class that day. Cell phone use during examination is cheating and will result in course failure.**

Attendance:
Attendance is mandatory. Attendance at lecture is important since most exam material will come from the lecture notes. Latecomers will not be tolerated. Students are responsible for materials covered during their absences. Class attendance is checked daily. *A student may be dropped from a course for excessive absences after the student has accumulated absences in excess of **12.5%** of the hours of instruction (including lecture and laboratory time)*. Note that 12.5% is approximately 4 classes or labs for a 4-semester hour course, such as this one, which meets for 3 hours twice weekly. **If circumstances significantly prevent you from attending classes, please inform me.** It is the responsibility of each student to amend their professional/personal schedule to meet the class schedule.

Examinations:
Lecture exams will consist of 50 multiple-choice questions. They will cover material we cover in class, important concepts and discussion from the text book as well as figures from the text book. The final exam will be comprehensive (it will cover all the chapters).

Make-up Examinations:
There will be no make-up exams and all exams are mandatory. Please note: All students are required to take the final.

Laboratory Policy:
Lab safety will be reviewed on the first day of lab. Experiments will be performed in groups. Each student should arrive at the lab on time, with his or her lab manual. Each student is responsible for completing the lab reports at the end of each lab.

Mastering Biology:
There will be optional homework on Mastering Biology for all students taking 1406. It is your responsibility to get the access code. Instructions on how to get the

access code are located in this syllabus. If you choose to complete homework on Mastering Biology, you will be awarded bonus points on your final exam.

Grade Determination:
All the exams will be considered towards final grade.
Three Lecture exams + Final exam = 75%
Lab. Exams = 20%
Lab. Reports = 5%

HCC Grading Scale
A = 90-100,
B = 80-89,
C = 70-79,
D = 60-69,
F = Below 60.

Academic honesty:
Students are expected to comply with stated policies in HCCS student handbook concerning academic honesty. Cheating will not be tolerated. There will be no talking, looking on other people's papers or in anyway try to cheat on any examination. This can lead to expulsion from Houston Community College. Academic dishonesty results in automatic failure in the course.

Phones/electronic devices:
Absolutely no phone or other personal electronic devices are to be used during class (lecture and lab). This includes making or taking a call, reviewing messages, texting, playing games, checking email, surfing the web, anything that involves a phone or other personal electronic device. If your work or family situation requires that you be available via phone, your phone can be on vibrate mode and you can take the call during our regular scheduled breaks or you can exit the class to review the call. Notify your friends, family, employers, and anyone else who regularly contacts you that you will be in class and that you should be contacted only when necessary. The taking of calls during class is not only disruptive but it is also discourteous to classmates and the instructor.

Last Day for Administrative and Student Withdrawals
Refer to the syllabus for the last date. I urge any student who is contemplating withdrawing from the class to see me first! You may be doing better than you think. Either way, I want to be accessible and supportive. I do not believe in "weed out" classes, and I consider you to be much more than just a name or number! If you need assistance, I'm here to help. **It is the student's responsibility to withdraw from the class before the last day of withdrawal. The instructor cannot give a "W" after the withdrawal date.** Abandoning the course or failing to formally drop, will result in a grade being given based on the work completed for the entire course (including missed exams).

To help students avoid having to drop/withdraw from any class, HCC has instituted an **Early Alert process** by which your professor will "alert" you that you might fail a class because of excessive absences and/or poor academic performance. The counselors with work with you to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

International Students:
Receiving a W in a course may affect the status of your student Visa. Once a W is given for the course, it will not be changed to an F because of the visa consideration. Please contact the International Student Office at 713-718-8520 if you have any questions about your visa status and other transfer issues.

Tutoring:
The college will provide tutoring for the students. More information will be available later. You can check the tutoring and open lab schedule at http://learning.swc.hccs.edu.

Disability Support Services (DSS)
Any Student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations should inform the instructor within one week of the first class session and must contact the Counselor at 713-718 7889, or contact the DSS office for assistance. At Southwest College, contact Dr. Becky Hauri, 713-718-7909.

Important Notice:
Student who repeats a course three times or more may soon face significant tuition/fee increases at HCC and other public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available. Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than SIX total course withdrawals throughout their educational career in obtaining a certificate and/or degree.

ASSESSMENT RUBRICS

GENERAL BIOLOGY I - BIOLOGY 1406

Performance Factors	Rating Scale				
	F	D	C	B	A
1] The student will be able to recognize the basic structure and describe the function of eukaryotic cellular organelles and cell systems. **PSLO #1**	Unable to demonstrate knowledge of shape, structure, or function of most eukaryotic cellular organelles. Unable to correlate organelles with their cell systems.	Occasionally able to demonstrate knowledge of shape and structure, or function of a few eukaryotic cellular organelles and cell systems.	Occasionally able to demonstrate knowledge of shape and structure, or function of most eukaryotic cellular organelles and cell systems.	Consistently able to demonstrate knowledge of shape, structure, and function of most eukaryotic cellular organelles and cell systems.	Consistently able to demonstrate knowledge of shape, structure, and function of all eukaryotic cellular organelles and cell systems
2] Given a DNA or RNA base sequence, the student will be able to deduce: a. the sequence of the complementary DNA strand b. the sequence of the complementary messenger RNA strand c. complementary	Unable to demonstrate knowledge of base pairing rules. Unable to demonstrate the ability to perform replication and transcription and translation, by scenario.	Able to demonstrate knowledge of base pairing rules for DNA only. Able to demonstrate the ability to perform replication by scenario. Unable to demonstrate the ability to perform transcription or translation, by scenario.	Able to demonstrate knowledge of base pairing rules for both DNA and RNA. Able to demonstrate the ability to perform replication and transcription OR translation, by scenario.	Able to demonstrate knowledge of base pairing rules for both DNA and RNA. Able to demonstrate the ability to perform replication and transcription AND translation, by scenario.	Able to demonstrate knowledge of base pairing rules for both DNA and RNA. Able to demonstrate the ability to perform replication and transcription AND translation, by scenario, without error.

codons and/or anticodons d. the proper amino acid sequence in a peptide by using a supplied table of genetic code. **PSLO #1**					

Performance Factors Rating Scale

	F	D	C	B	A
3] The student will be able to explain the synthesis and properties of a. carbohydrates b. lipids c. proteins d. nucleic acids **PSLO #1**	Unable to explain both the synthesis of polymers and the properties of any class of biological macromolecule.	Able to explain the synthesis of polymers, and the properties of any one class of biological macromolecule.	Able to explain the synthesis of polymers, and the properties of any two classes of biological macromolecules.	Able to explain the synthesis of polymers, and the properties of any three classes of biological macromolecules.	Able to explain the synthesis of polymers, and the properties of all four classes of biological macromolecules.
4] The student will be able to devise an experiment containing the proper	Consistently cannot differentiate between appropriate and inappropriate	Occasionally differentiates between appropriate and inappropriate experimental	Consistently differentiates between appropriate and inappropriate experimental	Consistently differentiates between appropriate and inappropriate experimental	Consistently differentiates between appropriate and inappropriate experimental

experimental test points along with proper positive and negative controls. **PSLO #2**	experimental design, in practice or by scenario.	design, but needs direction to proceed to next step.	design, but needs direction to proceed to next step.	design. Attempts to perform some appropriate corrective action or explain some appropriate action; needs some assistance from instructor.	design. Takes appropriate steps or explains appropriate steps independently and correctly.

Performance Factors Rating Scale

	F	D	C	B	A
5] The student will exhibit competence with bringing the brightfield microscope into focus. **PSLO #2**	Consistently unable to find the specimen on the microscope slide, and consistently unable to focus a microscope without the instructor's help.	Occasionally able to find the specimen on the microscope slide, but consistently unable to focus without the instructor's help	Occasionally able to find the specimen on the microscope slide, and occasionally able to focus without the instructor's help	Consistently able to find the specimen on the microscope slide, and occasionally able to focus without the instructor's help	Consistently able to find the specimen on the microscope slide, and consistently able to focus without the instructor's help
6] The student will develop the habit of reliable attendance by being absent from class no more than four times per semester. **PSLO #3**	Is absent frequently enough to interfere with instruction and the completion of the course objectives, and/or is frequently not where he/she is expected to be. Infracts the HCC attendance	When absent, is never aware of the schedule for the day upon return, and must be reminded or encouraged to complete objectives missed during the absence. Is occasionally not	When absent, is only occasionally unaware of the schedule for the day upon return. Completes objectives missed during the absence only with the help of the instructor and/or classmates, and is	When absent, independently or with little help completes objectives missed during the absence. Always aware of the schedule for the day, and is where he/she is expected to be at	Is never absent, always aware of the schedule for the day, and is where he/she is expected to be at all times. Consistently and willingly follows HCC attendance policies without being reminded.

	policies.	where he/she is expected to be.	where he/she is expected to be at all times.	all times.	
7] The student will demonstrate punctuality in the submission of class assignments on their due date. **PSLO #3**	Is tardy at turn-in frequently enough to interfere with class instruction. Submits assignments two or more weeks late, or ignores assignments.	Is tardy at turn-in frequently enough to interfere with class instruction or submits assignments no more than one week late.	Is occasionally a few minutes late for assignment turn-in. Submits assignments no more than one day late.	Is rarely late for assignment turn-in. Submits assignments late, but on the due date.	Is consistently on time for assignment turn-in. Always submits assignments on the due date.