HOUSTON COMMUNITY COLLEGE-SOUTHWEST COLLEGE

SYLLABUS FOR BIOL.1406 (Fall 2011)

INSTRUCTOR: Dr. Brian C. Mahon
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Course Title: Biol.1406 General Biology I
CRN: 54787 **Credit Hours**: 4
Class Time: Friday. 8AM to 11 AM Room 162, Friday. 11:30 AM to 2:30 PM Rm C 222
Text Book: Campbell BIOLOGY: 9th Edition by Jane B. Reece et al. HCC custom edition available at the bookstore as volume 1.
Laboratory Manual: Biology 1406, Laboratory manual. HCCS-Southwest, Dept. of Life Sciences.

Course Description:

Discussions focus on biological chemistry, biological processes, cellular morphology, metabolism, genetics and molecular biology. Core curriculum course. Cannot be used in conjunction with 1308.

Course Prerequisite:

One year of high school biology/high school chemistry recommended

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

COURSE OBJECTIVES

1. To establish an understanding of the major historical events in biology and their impact on science.
2. To describe basic cell structure, biochemistry, metabolism, nutrition, reproduction, and genetics.
3. To demonstrate knowledge of the basic principles of cellular inheritance.
4. To demonstrate knowledge of the basic principles of molecular genetic technology.
5. To demonstrate skill in basic laboratory methodology, such as microscopy, and the careful analysis of laboratory data and results.

"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!"

PROGRAM LEVEL STUDENT LEARNING OUTCOMES:

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 FOR 1406:

SLO1: The student will be able to recognize the basic structure and describe the function of eukaryotic cellular organelles and cell systems.

SLO2: 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.

SLO3: The student will be able to explain the synthesis and properties of

a. carbohydrates

b. lipids

c. proteins

d. nucleic acids

SLO4: The student will be able to devise an experiment containing the proper experimental test points along with proper positive and negative controls.

SLO5: The student will exhibit competence with bringing the bright field microscope into focus.

SLO6: The student will develop the habit of reliable attendance by being absent from class no more than four times per semester.

SLO7: The student will demonstrate punctuality in the submission of class assignments on their due date.

Tentative Class Schedule

Week 1	Chp.1 Introduction: Themes in the study of life. Lab Safety
	Chp.2 The Chemical Context of Life
Week 2	**Labor Day holiday (Sept.5th)**
	Chp.3 Water and Life. Lab.1 (do as a take home assignment)
Week 3	**Lecture Exam 1 Ch. 1 to 3 (Sept.16th)**
	Chp.4 Carbon and the Molecular Diversity of Life. Lab. Ex. 2
Week 4	Chp.5 The Structure and Function of Macromolecules. Lab. Ex. 3
Week 5	Chp.6 A Tour of the Cell. Lab. Ex. 4
Week 6	**Lecture Exam 2 Ch. 4 to 6 (Oct.7rd)**
	Chp.7 Membrane Structure and Function. Lab. Ex. 5
	Chp.8 An Introduction to Metabolism
Week 7	Chp.9 Cellular Respiration and Fermentation. Lab. Ex. 6
Week 8	**Laboratory Exam 1 (Oct. 21st)**
	Chp.10 Photosynthesis. Lab. Ex. 7
Week 9	**Lecture Exam 3 Ch. 7 to 9 (Oct 28th)**
	Chp.11 Cell Communication. Lab. Ex. 8
Week 10	**Day for Administrative Student Withdrawal (Nov. 3rd by 4.30pm)**
	Chp.12 The Cell Cycle. Lab. Ex 9
	Chp.13 Meiosis and Sexual Life Cycles
Week 11	Chp.14 Mendel and the Gene Idea . Lab. Ex. 10
	Chp.15 The Chromosomal Basis of Inheritance
Week 12	**Lecture Exam 4 Ch.10 to 13 (Nov. 18th)**
	Chp.16 The Molecular Basis of Inheritance. Lab. Ex. 11
Week 13	**Thanksgiving holidays from Nov.24th to 27th**
	Chp.20 Biotechnology (out of class reading)
Week 14	**Lecture Exam 5 Ch. 14 to 16 (Dec. 2nd)**
	Chp.17 From Gene to Protein. Lab. Ex. 12. Lab. Ex. 13 ?
	Chp.18 Regulation of Gene Expression.
Week 15	**Laboratory exam (Dec 9th)**
	Chp.19 Viruses.
	Instruction ends (Dec.9th)
	Final Exam (Dec. 16th)

Date	Tentative Laboratory Schedule
Sep. 2	Lab Safety
Sep. 9	Lab. 1 Basic Chemistry (take home lab)
Sep. 16	Lab. 2 Properties of Water
Sep. 23	Lab. 3 Biochemistry
Sep. 30	Lab. 4 The care and feeding of the microscope
Oct. 7	Lab. 5 Cell structure
Oct. 14	Lab. 6 Diffusion and Osmosis
Oct. 21	**Laboratory Exam 1 (Oct. 21st)**
Oct. 21	Lab. 7 Enzymes
Oct. 28	Lab. 8 Respiration
Nov. 4	Lab. 9 Photosynthesis
Nov. 11	Lab. 10 Cell division
Nov. 18	Lab. 11 Genetics
Dec. 2	Lab. 12 DNA to Protein
Dec. 2	Lab. 13 Biotechnology and DNA extraction ?
Dec. 9	**Laboratory Exam II (Dec. 9th)**
Dec. 16	**FINAL EXAM**

Instructor's contact:

Email: brian.mahon@hccs.edu (Please use your hccs student email to write to me)

Office Hours: By appointment.
You can access the syllabus and lecture notes on Blackboard at: http://hccs.blackboard.com/webct/entryPageIns.dowebct or at http://learning.swc.hccs.edu or you can also go to the learning web page or blackboard from the HCCS home page: http://www.hccs.cc.tx.us, under southwest college.

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 use of any electronic devices during the class period. Students are expected to conduct themselves as adults. This includes courteous and respectful behavior towards the instructor and classmates. Disruptive behavior or any behavior that interferes with any educational activity being performed by the instructor will not be allowed. Additionally, no student may interfere with his/her fellow students' right to

pursue their academic goals to the fullest in an atmosphere appropriate to a community of scholars. Disruptive behavior may result in removal from the class.

Attendance:

Attendance at lecture is importance since most exam material will come from the lecture notes. Students are expected to attend classes regularly and on time. Latecomers will not be tolerated. Students are responsible for materials covered during their absences. Class attendance is checked daily by instructors. *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

Examination:

There will be 5 lecture exams and a final exam. Lecture exams will consist of multiple-choice questions. Out of the 5 lecture exams only 4 will be considered towards the final grade. They will cover material we cover in class, important concepts and discussion from the text book as well as figures from the text book. You will get a maximum of one hour or one and half-hour period to complete your lecture exam. The final exam will be comprehensive (it will cover all the chapters). There will be a departmental final that all students need to take. You will take 2 finals one by the department and one by your instructor. The average of both final exams will be included in your final grade. The lecture or lab. exams will follow either lab. exercise or lecture. **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.**

Online Homework Assignments;

There will be mandatory online homework assignment on the Mastering Biology site (www.masteringbio.com). The course ID for your course is will be given to you on your first day of class. Each student is responsible to register on the mastering biology website using an access code. The access code comes with the new book. The information regarding the access code will be given to you. The homework assignments will be graded and will contribute to 10% of the final grade. The due dates for the assignments will not be extended. Please read the instructions regarding mastering biology on the learning web or blackboard before you start taking the assignments.

Make-up Examination:

There will be no make-up exams and final exams are mandatory. One lecture exam out of the four will be dropped for the final computation. If you miss one lecture exam, it will be counted as a dropped exam. Please note: All students are required to take the final exam. Failure to take the final exam will result in an 'F' grade.

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.

Grade Determination:

All the exams will be considered towards final grade.
Four Lecture exams & Final exam = 65%
Assignments on Mastering Biology = 10%
Lab. exam = 20%
Lab. Report = 5%

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 any way try to cheat on any examination. This can lead to expulsion from Houston Community College. You will be given a warning in writing and next time it will mean and 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! Note my office hours, above; 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

EGLS3 Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for the continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.

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

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	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 experimental test points along with proper positive and negative controls.	Consistently cannot differentiate between appropriate and inappropriate experimental design, in practice or by scenario.	Occasionally differentiates between appropriate and inappropriate experimental design, but needs direction to proceed to next step.	Consistently differentiates between appropriate and inappropriate experimental design, but needs direction to proceed to next step.	Consistently differentiates between appropriate and inappropriate experimental design. Attempts to perform some appropriate corrective action or explain some appropriate action; needs some assistance from instructor.	Consistently differentiates between appropriate and inappropriate experimental 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.	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.	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 policies.	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 where he/she is expected to be.	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 where he/she is expected to be at all times.	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 all times.	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.
7] The student will demonstrate punctuality in the submission of class assignments on their due date.	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.