SYLLABUS

BIO 121 General Biology 1

(Introductory Cell Biology)

Spring 2019:

Lecture:	Blackboard Hybrid	
Laboratory:	Monday 1:30-4:15pm	213B

Supplemental Material in Blackboard

Dr. Patrick Bryan
Office: 209 Wheaton
Office Hours: Monday 11 - 12pm
Wednesday 11 - 1pm

And By Appointment

e-mail: pbryan@mxcc.edu

Course Text: One Book Required. College Bookstore stocks *Custom version of "CAMPBELL BIOLOGY". Full version of Campbell BIOLOGY or "Essential Cell Biology" by Alberts et al. (any edition), OR "BIOLOGY" by Raven and Johnson (any edition) available elsewhere. The campus bookstore stocks the **Custom Campbell Biology** book.

*This text is offered by the college bookstore. Discus alternate texts with instructor.

Contacting Me:

If you need to ask me something about the class you have several ways to get in touch with me. E-mail is probably the easiest and fastest way to get your questions answered. I can access e-mail messages from my office or home, and check my messages each day. If you need to talk you can ask me whatever you want during the lab period of our course. It is best to not ambush me with questions 5 minutes before class begins, as I am usually organizing materials and time is limited. You can also set up an appointment with me if you need help with the class material (see office hours above). Ask me in person during lab or by e-mail. I will meet with you as often and for as long as you require, but be sure to set up the meeting first. If you just show up at my desk when I do not have posted office hours and can not find me, you will need to send ME an e-mail and set up a time to meet.

HYBRID COURSE:

This course format covers the same material and has all the same labs and lecture exams as the traditional lecture course. We do not have a regularly scheduled lecture time. However, I have created and posted mini-lecture videos covering all the course topics. You have links to these videos in Blackboard. You can watch them whenever you want, pause them, rewind them, skip through etc. The nice thing is that you are in control of the timing yet get the exact same information as the in class lecture. In fact, it may be better in some ways, as you can break it into shorter segments that you control. You watch them any time, any day.

If you want to be successful in this course you must commit to a set amount of time in your weekly schedule where you regularly review the online course material. Success is not going to be achieved if your goal is a "C" grade. You need to strive for an "A" in this course. If you fall short of that goal, you can salvage your effort with a "B" or "C" but I can assure you that if you are looking to get into a competitive program, a "C" will not help you. Moreover, if your goal is "C" and you fall short, you will be taking the class over. Shoot for an "A".

You will need to send me an email (pbryan@mxcc.edu) during the first week of classes and tell me exactly when you plan on reviewing online materials each week. This will be your regularly scheduled "class time." I will check in with you periodically to see if you are keeping up or needing to alter your schedule.

Course Objectives:

General Biology 1 (BIO 121) is a core biology course designed for students who may major in Biology or a field requiring a solid background in biology. This course will be an introduction to the study of cells, cellular organelles, and an array of processes that take place within the smallest unit of life, the cell. Cell Biology is a broad field of study that covers aspects ranging from modern molecular biology to traditional cellular processes and structures. Therefore, we will focus on the key topics in Cell Biology and add details to concepts you may have been previously exposed to in other courses. It is important that you understand the dynamics of cell structure and mechanisms occurring within cells. The comprehension and retention of concepts presented in this course are essential to your overall understanding of how biological systems function.

The main objectives of this course are: (see Course Outcomes at end of Syllabus)

- ·To understand the basic chemistry concepts important to biology
- ·To provide an introduction to the structure of cellular organelles
- ·To provide you with a basic understanding of cellular processes including:
  (the dynamics of membranes, cellular respiration, the genetic code, expression of genes through protein synthesis, enzyme function and regulation, cell division and the cytoskeleton)
- ·To reinforce the basic concepts relating to macromolecules and chemical

interactions
- To introduce modern techniques used in biological laboratories to study cells and cellular biology

Exams:

There will be four lecture exams plus a cumulative final exam. The lecture exams will be multiple choice, short answer, and essay questions specifically taken from the lecture material and assigned readings. The final exam will cover **cumulative** knowledge of Cellular Biology from each of the previous exams. Make-up exams will only be given under exceptional circumstances and with direct permission obtained **before** the scheduled exam time. The final **must** be taken at the designated time. If you miss an exam and have not previously arranged to take a make-up, you will receive a zero for that exam. Please plan ahead and stay up to date with the exam schedule.

Studying:

This class will be challenging for most students. You can do well in the course provided you are dedicated to learning the material. Exams will assess both your ability to retain facts and your ability to process complex information and use it to solve simple problems. You need to study at least 8h a week if you want to do well. Many students spend over 12h a week studying. Quantity of Time is NOT as important as quality of study time.

Do: study in a quiet place with no distractions, no food, tv, people talking etc.
Do: re-write your notes, but not just verbatim, re-write them in your own words, summarize them. If you can do this you have started to process the information
Do: read the book and your notes OUT LOUD. Hearing yourself increases retention.
Do: re-read and re-write again and again.
Do: form study groups to meet **several** times before and exam, alternatively: utilize the **Discussion** Function of our Vista Course Web Site

Attendance:

It is your responsibility to obtain course information both related to exams and other assignments. All responsibilities and expectations will be explained during lecture and lab sections. If you fail to attend class and miss vital information, it is **by your choice**. Returned assignments, review of assignments, and specific instructions concerning exams and assignments will be given to those attending class. If you choose to miss class you choose to forfeit this information. The instructor will not be providing special private instruction to students who skip classes. If you have valid reasons for missing class, I can help direct you to the appropriate material to study. If you miss laboratories, you will not be participating in lab activities or collecting data, which is graded. SO you will indirectly lose credit by missing lab, through you lack of laboratory results in your notebook (which is graded).

Grading:

Grades will be assigned according to the point system below. Do not expect any extra credit assignments to be offered. **Assignments must be submitted on time to receive full credit**. Assignments you turn in **late** will be graded (for reduced points) and returned, but expect them back to you no sooner than the end of the semester. The only Gradebook for the course is the Online Gradebook in Blackboard. You have access to all of your grades in Blackboard at any time. Do not expect the instructor to tell you your "Current Grade" as this is something you can calculate for yourself at any time. You add up the total of points that you have received to date, and divide by the total possible points to date. That's it.

Exam 1-4	300	(100 pts each)
Cumulative Exam	150	
Quizzes Online (15)	150	(10 pts each)
Lab report (1)	50	
Lab technique exams (2)	50	(25 pts each)
Lab Notebook*	100	
TOTAL =	**800 points**	

Note that approximately 50% of your grade is the result of lecture exams while the other 40% + results from course assignments. This type of system allows for students to maintain their grades and demonstrate their knowledge in the course outside of traditional exams. However, these assignments can hurt you as readily as they can help you. Complete your assignments on time and do a thorough job on each assignment.

Lecture:

Regularly scheduled class periods will be devoted to lectures. The lectures will be conducted in an interactive format, where students are strongly encouraged to **ask questions** and **insert comments**. Lecture information will be a main source of exam questions. It will be very important to attend lectures and obtain a complete set of class notes in order to do your best in the course. No formal attendance record will be kept during class, but past experience indicates that a good grade almost necessitates regular class attendance. Specific reading assignments are listed on the course web site. Students who keep up with the reading can actually use class time to learn and they perform much better on exams than students who do not read the text. However, the lecture and presentations are the major sources for specific information on the exams. We will follow sequence of topics given on the "Course Outline" (with some flexibility). I will slow down or speed up the topics in relation to how well students are learning the material. So the Schedule for topics is not in stone, but the exam dates will NOT change. (unless snow)

Laboratory:

Cell and molecular biology are large and diverse fields of active research, employing many more techniques and procedures than could be learned by a single individual in a lifetime. However, certain basic techniques are used in a broad range of experiments. In this course we will learn some of these basic techniques while becoming familiar with standard laboratory practices. The exercises presented early in the semester introduce fundamental tools that should be mastered by practically all biologists. Later exercises employ somewhat more sophisticated techniques, and require the use of those learned earlier. Thus the course contents builds in complexity, requiring that students learn the subject matter and procedures as they are introduced in the lectures and laboratory exercises.

The specific details pertaining to each laboratory session will be given to you in a handout prior to the lab period, available on the Class Vista Site (or during a short lecture period preceding the lab). You will be required to read the lab procedures before lab, as our time will be limited.

Lab Goals:

1. Master basic techniques working in a biological laboratory environment
2. Become familiar with a variety of advanced techniques, which will not be mastered but will gain a concept of the skills involved
3. Collect both qualitative and quantitative data
4. Analyze quantitative data and synthesize in the format of a laboratory report
5. Gain an appreciation for working in a laboratory environment

Quizzes:

Every week you will take a quiz from the lecture material that is worth 10 points. There will be 15 of these quizzes. These quizzes will be given to you to perform outside of class time. They are available on the course web site and must be taken on-line. You can view the quiz as many times as you wish and even submit your answers for a grade several times. My gradebook will record your highest grade. However, there will be a limited time period that each quiz is available. Once the date for a Quiz expires it will no longer be available and you will receive a Zero for that assignment. You will have about 5 days to complete each quiz. Aside from a catastrophic crash of the internet or a long term problem with the Vista site, technological problems will NOT be accepted. You can do these Quizzes on campus or from home and if you have problems logging in to the Site Contact me. **SEE COURSE SCHEDULE IN BLACKBOARD FOR DATES OF EXAMS**

Technique Exams:

Throughout the course we will utilize several basic lab techniques during our experiments. You will be responsible for understanding the technique and performing it properly. We will have two Lab Technique Exams throughout the course where you will be given a task and must perform it correctly. You ability will be graded. There will be two exams (25 points each) and the specific techniques will be announced in lab a week before each exam.

BIO 121 Laboratory Outcomes:

A student successfully completing the laboratory course should be able to demonstrate the following skills:

1. Properly focus a light microscope and/or dissecting microscope to view specimens
2. Identify cell structure on slides using a light microscope

3. Prepare and view wet mount slides

4. Demonstrate proper laboratory safety procedures for handling chemicals and other laboratory materials

5. Properly measure liquid chemicals using a graduated cylinder and/or pipette

6. Accurately record volume measurements using a graduated cylinder and/or pipette

7. Accurately determine the pH of a solution

8. Conduct experiments involving chemical and biological principles such as diffusion and osmosis, pH, and enzyme activity

9. Safely and Properly mix chemicals(ie acids and bases into water)
10. Perform scientifically sound and safe experiments
11. Successfully follow laboratory procedures, record observations and report their findings using the scientific method

12. Use standard laboratory equipment correctly and record data to reflect the accuracy of the instrument

13. Select and use appropriate personal protective equipment

14. Prepare and use a standard curve to determine unknown concentration

15. Prepare a molar solution based on their own calculations from given information

16. Prepare serial dilutions

17. Use a hemocytometer to count cells/organelles (chloroplasts) and calculate concentration of a suspension based on these numbers

18. Identify stages of cell division under a light microscope

IMPORTANT COLLEGE POLICIES!! PLEASE READ CAREFULLY!

For information about the college's policies and procedures regarding academic honesty, accessibility/disability services, attendance, audio-recording in the classroom, grade appeals, plagiarism, religious accommodations, weather and emergency closings, and more, please go to the following website: www.mxcc.edu/catalog/syllabus-policies/ or scan the QR code with your smart phone. Also, please become familiar with the policies regarding nondiscrimination, sexual misconduct, and general student conduct at the following website: www.mxcc.edu/nondiscrimination/.

NON-DISCRIMINATION STATEMENT

Middlesex Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression or genetic information in its programs and activities. In addition, the College does not discriminate in employment on the additional basis of veteran status or criminal record.

The following people have been designated to handle inquiries or complaints regarding non-discrimination policies and practices:

- *Primary Title IX Coordinator*
  Dr. Adrienne Maslin
  Dean of Students/Title IX and Section 504/ADA Coordinator
  amaslin@mxcc.edu; 860-343-5759; Founders Hall Room 123|

- *Secondary Title IX Coordinator*
  Ms. Mary Lou Phillips
  Director of Human Resources, Middlesex Community College
  mphillips@mxcc.edu; 860-343-5751; Founders Hall Room 115

- *Secondary Title IX Coordinator*
  Ms. Queen Fordham

Coordinator of the Meriden Center Welcome Desk
qfordham@mxcc.edu; 203-608-3011