

## **BSc 1406 Laboratory– Introductory Biology I Fall 2012 Syllabus**

**Instructor:** Ms. Molly Jacobsen, Graduate Student (Sections 3 & 4- W & R 1 pm- 3:50 pm)  
Ms. Lauren Bailey, Graduate Student (Sections 1 & 2, M & T 1 pm- 3:50 pm)  
Ms. Ashley Francis (Section 5, Friday 9:30 am-12:20 pm)  
Mr. Patrick MacKnight (Section 6, Friday 9:00 am-11:50 am)

**Required lab manual:** Available at your lecture eCollege website. There is no purchase of a physical textbook but you are responsible for printing out all of your labs, plus any supplementary material.

### **Contact Information:**

	<b>Office Location</b>	<b>Office hours</b>	<b>e-mail address</b>
Molly	STC #234	W 11-12, R 11-12	mollyjacobsen19@gmail.com
Lauren	STC #241	F 12-1	laurenbai2@yahoo.com
Patrick	STC #201	MW 10-11; TR 9:30-10:30	hmacknight@leomail.tamuc.edu
Ashley	STC #226	W 12-2	afrancis2@leomail.tamuc.edu

*Other hours available by appointment.*

### **BSc 1406 Laboratory Objectives:**

1. Students will learn to implement the scientific method.
2. Students will learn to compile, organize, and interpret data.
3. Students will become proficient at basic biological skills including use of biological tools.
4. Students will learn to communicate the results of experiments through written laboratory reports.
5. Students will learn to keep an organized laboratory notebook.
6. Students will learn to utilize Microsoft Excel and Microsoft Powerpoint to demonstrate laboratory findings in a professional and visually informative format.

#### **Objective 1. Students will learn to implement the scientific method.**

The scientific method provides the framework for any research project. Lab exercises will initially consist of a problem or scenario. Students will develop their own hypothesis prior to the experiment. They will then develop and perform methods in which to test their hypothesis. Students will collect and interpret their results and write lab reports to describe and discuss their findings. Results may also be discussed as a class.

#### **Objective 2. Students will learn to compile, organize, and interpret data.**

Data collection and analysis are fundamental skills for any biologist. As such, in the course of performing lab exercises, students will collect data. The use of the computer lab will facilitate data analysis. Students will then interpret these results. Further, students will keep a detailed lab notebook in which they are accountable for having in lab throughout the course.

#### **Objective 3. Students will become proficient at basic biological skills including use of biological tools.**

Freshmen biology will provide the foundation for your upper level performance courses. Each lab class will have a portion dedicated to learning specific basic biological techniques. These include but are not limited to microscopy, basic conversions, aseptic technique, statistical analysis, use of pipetting, and microbiological skills. Students will integrate these skills when performing experiments.

**Objective 4. Students will learn to communicate the results of experiments through written laboratory reports.**

As a biologist it is vital to learn to communicate effectively, both verbally and by written means. Students will learn to correctly write and format lab reports including: Cover pages, Abstract, Introduction, Methods, Results, Discussion and Works cited. At the beginning of the semester, lab reports will be constructed so that students are prompted through a series of questions regarding the laboratory. As the semester progresses, students will begin to write individual sections of the reports and finally at the conclusion of the semester, a lab report in its entirety.

**Objective 5. Students will learn to keep an organized laboratory notebook.**

The laboratory notebook is one of the most important aspects to conducting any kind of research. Therefore, students will be required to keep a well-organized laboratory notebook. All lab exercises, notes, handouts, graded materials, and laboratory skills check off sheet should be kept in the notebook. **Students are required to have their notebook and printed labs at every lab session.**

**Objective 6. Students will learn to utilize Microsoft Excel and Microsoft Powerpoint to demonstrate laboratory findings in a professional and visually informative format.**

Students will be instructed on proper formatting of Excel figures and will be responsible for using them to depict results in laboratory reports throughout the semester. In addition, students will become accustomed to creating and presenting professional powerpoint presentations with a group during the semester.

**Grading:**

Attendance- taken at the BEGINNING of each class	10%
Lab Skills Check off sheet	10%
Midterm presentations	10%
Weekly Lab Reports	15%
Final Lab Report	7.5%
Final Powerpoint Presentation	7.5%
Binder checks (each worth 5%)	10%
Midterm Exam	15%
Final Exam	<u>15%</u>
	100%

***Take your lab grade seriously. It accounts for 25% of your overall grade in lecture.***

**Attendance:** Attendance in lab is MANDATORY and will be taken at the beginning of EVERY lab session. Makeup work will be arranged in the event of an EXCUSED absence (as defined by the Student's Guidebook or in the Undergraduate Catalog). If an event comes up that is not considered "excused" by the University- you can discuss with your lab instructor attending one of the other 4 lab sections that week. Your lab instructor must ok this before you can show up to another lab session that week. **Arrive on time for lab.** If you arrive after attendance has been taken, you will receive a 70 for that day's attendance grade. It is YOUR job to let the instructor know if you come in late- otherwise you might receive a 0 for that lab's attendance grade. Unexcused absences or absences you fail to let your lab instructor know about will result in a 0 for that lab's attendance, a 0 for the work due that class and a 0 for the next week's lab due to that fact that you will miss that experiment. It is NOT acceptable to miss a lab and get the results from another student to answer the lab questions. You must be in attendance for the experiment to receive credit for the work. No exceptions.

Please note that due to University holidays, some lab classes will need to be rescheduled. Failure to attend a makeup lab will result in a 0 for that lab. Your lab instructors will let you know what days make-up labs will be held.

### **Lab exercise preliminary hypothesis:**

In order to perform experiments accurately, it is important that **students read and understand lab exercises before the actual lab class** in which it will be performed. Therefore, each student must read the lab exercises and write their own **unique** and plausible hypothesis based on that lab exercise. If there are concepts or terms which you don't understand you should look them up for clarification.

At the beginning of each lab class, every student should show their hypothesis to the lab instructor. If it is deemed acceptable, the student receives the instructor's signature on their hypothesis check off sheet. You will not be allowed to perform the lab until you have written the hypothesis. Students who plagiarize their hypothesis from other students will not be allowed to perform the lab for that day and will receive a 0 for all work relating to that lab.

### **Lab Skills:**

Students must print a lab skills check off sheet. Lab skills will be performed in each lab class and each skill listed on the sheet must be completed correctly by each individual student. It is the student's responsibility to have the lab instructor sign off on their lab skills sheet every week. There will be no late signatures given after that lab has passed.

### **Notebook:**

The laboratory notebook should be brought to lab EVERY class. The notebook should remain organized and should contain all lab class materials. One unannounced notebook check will occur during the semester. Students who do not have their notebook will receive a 0. At the conclusion of the semester, another notebook check will occur.

### **Midterm powerpoint presentation:**

As a group, you will create a short powerpoint presentation based upon one of the previous lab exercises performed prior to the midterm. The presentation will include the methods and results obtained from one of the labs. You will also interpret the results and include a brief discussion. Each individual group member must participate in both the creating of the powerpoint and the presentation. Your presentations will be evaluated by both your classmates and your lab instructor. More information regarding this powerpoint will be presented to you later in the semester.

### **Weekly lab reports:**

Weekly lab reports will be completed after performing the associated laboratory exercise. Weekly lab reports are due at the beginning of the next lab class- **NO EXCEPTIONS**. You will need to turn in a hard copy of the lab report, e-mailed versions of the lab report will not be graded. Students are expected to individually comprise their own unique sections of lab reports. Any lab reports showing evidence of plagiarism will receive a grade of 0 and is subject to be turned over to the Dean. All lab reports must be typed and in complete sentences with correct grammar and spelling. Failure to comply with this will result in points deducted from your paper. Turn in all parts of your weekly lab report **STAPLED TOGETHER**. If you don't have a stapler, you should consider investing in one for your college career.

### **Final Lab report and presentation:**

Every student will be individually responsible for writing their own lab report based upon the final lab exercise of the semester. Additionally, each group will create and present to the class a Powerpoint

presentation over a lab which took place after the midterm. More information regarding both the powerpoint and the final paper will be presented to you later in the semester.

**Paper format:** Paper format will be discussed in greater detail once you get to that point in the semester.

- 12 point times new roman font ONLY
- 1 inch margins around
- double spaced
- All references should be cited on a separate sheet of paper at the very end
- include an individual cover sheet for every week you write part of a lab report
- include a running header on all pages (excluding cover page)

**Exams:**

Students will take a midterm and a cumulative final exam. The midterm will consist of both a laboratory practical and a multiple choice portion while the final exam will be strictly multiple choice.

**Obligatory Statements:**

Plagiarism is a criminal activity. You must cite all sources of information. Copying of material, whether parts of sentences, whole sentences, paragraphs, or entire articles, will result in a grade of zero for any work submitted for a grade and can result in further disciplinary action.

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (see Student's Guide Handbook, Policies and Procedures, Conduct.)

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have disability requiring accommodations please contact: Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, phone (903) 886-5150 or (903) 886-5835, fax (903) 468-8148, StudentDisabilityServices@tamu-commerce.edu.

**Early Intervention for First-year Students:**

Early intervention for freshmen is designed to communicate the University's interest in their success and a willingness to participate fully to help students accomplish their academic objectives. The university through faculty advisors and mentors will assist students who may be experiencing difficulty to focus on improvement and course completion. This process will allow students to be knowledgeable about their academic progress early in the semester and will provide faculty and staff with useful data for assisting students and enhancing retention. Grade reports will be mailed by the end of the sixth week of the semester.

In addition, keep in mind that there are 4 instructors for this laboratory. If you are struggling with concepts or just have a question, you are welcome to come find ANY of the 4 lab instructors to assist you.

**We are all here to help you succeed in this course.**

## Tentative Laboratory Schedule:\*

<b>Week of</b>	<b>Topic</b>	<b>Skill sets</b>
9/3	Lab Safety/Introduction to Excel	excel and powerpoint, mean and standard deviation
9/10	Microscope and Microbes	microscope, macropipettes, wet mount slides
9/17	Macromolecules	simple and gram staining
9/24	Osmosis	micropipettes
10/1	Cellular Respiration	independent versus dependent variables
10/8	<b>Midterm Presentations</b>	
10/15	<b>Lab Midterm Exam</b>	
10/22	Mitosis	Chi-Square test
11/5	Meiosis and Mendelian Genetics	Meiosis models
10/29	Polymerase Chain Reaction	DNA extraction and amplification, blood smears
11/12	Polymerase Chain Reaction Continued	Hardy Weinberg
11/19	Thanksgiving Break	
11/26	<b>Final Lab Report Presentations/Reports due</b>	
12/3	<b>Lab Final Exam</b>	

\*This schedule is subject to change at the instructor's discretion.