

## Pharmacological Biology Syllabus Summer 2014

### **Course Name(s)/Number (s):**

Pharmacological Biology: BIO445-C (CRN 31967); BIO6545-Y (CRN 31968)

### **Course Location & Times:**

Hederman Science Building 201 and Medical Sciences Building 221; varies with some mandatory lab meetings.

### **Instructor:**

Angela A. Reiken, Ph.D., Assistant Professor, Department of Biology  
Medical Sciences Building 216, (601) 925-7783, [reiken@mc.edu](mailto:reiken@mc.edu)

### **Prerequisite(s):**

Instructor's consent.

### **Course Description from the University Catalog:**

**BIO 445** - Special Topics- Credits, 3 sem. hrs. Prerequisite(s): instructor's consent. A study of selected current topics in biology.

**BIO 6545** - Special Topics- Credits, 3 sem. hrs. A. study of selected current topics in biology.

### **Rationale:**

The purpose of Pharmacological Biology is to prepare science students to design and carry out experiments to answer research questions while mastering necessary skills to perform experiments. This course involves proper usage of data analysis, interpretation of data, and presentation of results. Students should learn how science works, gain an appreciation of research as a means to find explanations for aspects pertaining to the world from a scientific perspective, understand the contexts of science, and utilize this understanding as a basis for ethics and future decisions consistent with the values of Mississippi College.

### **Methods of Instruction, Required Practices, and Instructional Materials:**

- Methods of instruction include lab meetings with a discussion format with content specific to the syllabus, notebooks, information research, safety, skills, designing experiments, collecting and analyzing data, writing scientific reports, and preparing presentations. There will be practical hands-on training demonstrations by the instructor.
- Required practices include students applying and practicing skills in the lab during experimentation, participation in team experiments, managing collection and analysis of data in a personal laboratory notebook, following safety and related procedures, reading, writing a scientific report, and preparing and presenting either written or oral presentations.
- Instructional materials include instructional videos, scientific papers, laboratory equipment, computer, marker board, and handouts.

### **Student Objectives and Outcomes:**

Upon the completion of this course you will be able to:

- Understand peer-reviewed scientific papers
- Learn various scientific techniques related to a project
- Perform and trouble shoot experiments
- Collect and critically evaluate data
- Present findings in written report and oral formats

### **Methods of Evaluation:**

- Lab notebook – it is imperative that you keep a complete and accurate lab notebook that is updated on a daily basis. This notebook should include methods, results, and any other information that is pertinent to the experiment. Instructions for notebooks will be provided by the instructor.
- Participation- Students will work individually and as a team to complete experiments. Team members will work cooperatively while each is expected to contribute equally to the project. Each team member will be graded on an individual basis. The student team will follow the schedule at the end of this syllabus. A team member not completing his/her portion of the plan will not negatively affect the grade of other team members. Please note that if this occurs, experiments may have to be repeated in full for that team member to obtain data for his/her portion of the work. This will not be the responsibility of the other team members! Participation also involves following rules of safety and cleanliness. Everyone on the team is expected to do his/her part. Also, see Attendance section below.
- Lab meetings – Since one of the best ways to learn science is by discussing it with our peers, we will meet to discuss designing experiments, techniques, data analysis, writing reports, and related scientific papers. Students will present the instructor with a schedule of their availability by the end of week 1 so that lab meetings may be scheduled to accommodate variable student schedules. Some training meetings with the instructor will be mandatory. Inform the instructor in advance if a meeting cannot be accommodated by your class schedule so that arrangements can be made. Be prepared to participate.
- Scientific reports and/or oral presentations are due at the end of the semester and will serve as your final means of evaluation. Instructions for reports will be provided by the instructor.
- There are no formal exams for this course. Assignments utilized for evaluation must be completed on time. See the schedule at the end of this syllabus. If you miss completing an assignment on time, you must notify the instructor immediately and provide a medical, family emergency, school/job interview, or other valid excuse and make up the work within 1 week. Failure to do so will negatively affect your grade.

### **Attendance:**

Each semester hour of credit corresponds to 53+ clock hours. Therefore, for a 3 credit course, you are expected to complete 160 clock hours during the 10 week term. This is a minimum. You're always welcome complete more clock hours! However, accruing less than 160 clock hours will negatively affect your grade. For a 10 week term, the average is 16 hours per week. You may be in the lab more or less than 16 hours per week as long as you complete 160 hours for the full 10 week term. Please note that the scientific report and oral presentation due at the end of the summer are required, even if you have already completed 160 clock hours.

### **Writing Center:**

The Mississippi College Writing Center, supervised by Dr. Steve Price, offers writing consultations free-of-charge to MC students. The Center is staffed by highly-qualified undergraduate tutors who conduct interactive, one-on-one sessions with students of all disciplines. The goal is to help writers at any stage of their writing process, from choosing topics to organizing their thoughts, from deep revision to grammar. To schedule an appointment, drop by the LRC area on the first floor of the Leland Speed Library; call 601.925.7289; or email WritingCenter@mc.edu. Walk in visits are also available.

### **Academic honesty:**

You are members of an institution that is dedicated to scholarship and spiritual growth. This institution is part of the larger academic community, the foundation of which is based on personal honesty. The success of this community depends on the commitment of both students and faculty to this principle and therefore cheating and plagiarism cannot and will not be tolerated. More importantly, Mississippi College is dedicated to empowering its students to develop the skills necessary for “making responsible, moral choices,” and therefore, the University will accept nothing less than scrupulous honesty from its students. We will follow the

University policy on Academic Honesty (Policy 2.19), which can be found in the student handbook, The Tomahawk, pp. 35-36. <http://www.mc.edu/publications/handbook/academic.pdf>

### **Grading:**

**ALL STUDENTS: YOUR FINAL GRADE WILL BE LOWERED BY 10 POINTS FOR EVERY 16 HOURS BELOW THE REQUIRED 160 CLOCK HOURS (lowered by 5 points for every 8 hours below, etc.). SEE ATTENDANCE SECTION ABOVE!**

<u>Assignment/Activity</u>	<u># of Points</u>
160 Clock Hours	80
Lab Notebook	80
Participation	40
Final Report or Presentation	100

Graduate students: As a supplement to the scientific report, each graduate student will be assigned a background topic related to the research and will write a brief, minimum 3 page paper about the topic that will be included in the scientific data and analysis report grade. The body of the paper should be typed using Times New Roman 12 font and double-spaced with 1-inch margins. The paper should also include a cover sheet with the student's name and the topic and a reference page. Only published scientific articles and texts are accepted as references, no websites references will be allowed! The report should be emailed in Word format to the instructor. The special topic will be 25% and the final report or presentation will be 75% of the Final Report or Presentation grade for a total of 100% of the 100 points.

### **Calculation of Final Grade:**

Total Points (Up to 300) / 3 = Final Grade (Up to 100)

Undergraduate Grading Scale: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, and <60% = F.

Graduate Grading Scale: 90-100% = A, 85-89% = B+, 80-84% = B, 75-79% = C+, 70-74% = C, 60-69% = D, and <60% = F.

### **Special accommodations at Student Counseling Services:**

In order for a student to receive disability accommodations under Section 504 of the Americans with Disabilities Act, he or she must schedule an individual meeting with the Director of Student Counseling Services immediately upon recognition of their disability (if their disability is known they must come in before the semester begins or make an appointment immediately upon receipt of their syllabi for the new semester). The student must bring with them written documentation from a medical physician and/or licensed clinician that verifies their disability. If the student has received prior accommodations, they must bring written documentation of those accommodations (example Individualized Education Plan from the school system). Documentation must be current (within 3 years). The student must meet with SCS face-to face and also attend two (2) additional follow up meetings (one mid semester before or after midterm examinations and the last one at the end of the semester). Please note that the student may also schedule additional meetings as needed for support through SCS as they work with their professor throughout the semester. Note: Students must come in each semester to complete their Individualized Accommodation Plan (example: MC student completes fall semester IAP plan and even if student is a continuing student for the spring semester they must come in again to complete their spring semester IAP plan). Student Counseling Services is located in Alumni Hall Room #4 or they may be contacted via email at: [mbryant@mc.edu](mailto:mbryant@mc.edu) or [rward@mc.edu](mailto:rward@mc.edu) or by phone at [601-925-7791](tel:601-925-7791).

**Important college dates:**

May 26, Monday - Memorial Day Holiday: Offices Closed; No Day or Night Classes

May 26, Monday, 2:00 pm: Residence Halls Open

May 27, Tuesday: Day and Evening Classes Begin

May 29, Thursday: **LAST DAY TO Drop with a 100% Tuition Only Refund, REGISTER OR ADD 10 WEEK COURSE**

June 4, Wednesday - 6:00 pm: Writing Proficiency Exam

June 6, Friday: Priority Deadline for ALL Degree Applications for August 2014 Graduation

June 20, Friday: **LAST DAY TO DROP 10-WEEK COURSE**

June 20, Friday: Participation Deadline for ALL Degree Applications for August 2014 Graduation

July 4, Friday, Independence Day Holiday: Offices Closed, No Day or Night Classes

July 31, Thursday: Last Day of 10-Week Classes and Final Exams for 10 Week Session Classes

**Course Topics and Schedule:**

WEEK	TOPICS
1	Syllabus
General Skills Part 1	Overview
	Notebook Instructions
	Safety and Lab Maintenance
	Experimental Design
	Organization of Data
2	Plate Storage
Plate Colony Counts	Collection and Recording of Data
	Photography for Figures
	Disposal of Materials
3	Data Calculations
Plate Colony Counts	Data Analysis
	Histograms
	Report Figures
4	Pipetting
General Skills Part 2	Nanodrop
	Spectrophotometer
5	Collected Sample Storage
Spectrophotometry	Collection and Recording of Data
	Disposal of Materials
6	Data Calculations
Spectrophotometry	Data Analysis
	Histograms
	Report Figures
7	Microscopy
General Skills Part 3	Hemocytometer
	Hemocytometer Calculations
8	Collected Sample Storage
Hemocytometry	Collection and Recording of Data
	Disposal of Materials
9	Data Calculations
Hemocytometry	Data Analysis
	Histograms
	Report Figures
10	Finalization of Reports
Final Reports/Presenttions	Grad Background Research Due
	Notebooks Due