

Mississippi College
Cell Biology and Genetics Laboratory (2 credit hours)
Syllabus

Courses:

[Cell Biology and Genetics Lab - 13098 - BIO 307 - A](#)
[Cell Biology and Genetics Lab - 11792 - BIO 307 - B](#)
[Cell Biology and Genetics Lab - 11793 - BIO 307 - C](#)
[Cell Biology and Genetics Lab - 13198 - BIO 307 - D](#)

Instructors: *See MC Moodle for office hours for each professor*

Stephanie Carmicle, Ph.D. office: MSB 215 email: carmicle@mc.edu
*Section A meets Monday 2:30p-3:30p AND Tuesday 1:30p-5:30p

John Piletz, Ph.D. office: HSB 111B email: jpiletz@mc.edu
*Section B meets Monday 2:30p-3:30p AND Wednesday 1:00p-5:00p
*Section D meets Monday 2:30p-3:30p AND Friday 1:00p-5:00p

Bob Sample, Ph.D. office: MSB 217 email: sample@mc.edu
*Section C meets Monday 2:30p-3:30p AND Thursday 1:30p-5:50p

Prerequisites: BIO 111 and CHE 141

Co-requisites: BIO 305 or BIO 306

Catalog Course Description: “A laboratory course designed to illustrate the techniques of cell biology and genetics using yeast as a model system.”

Rationale: The mission of the College is to prepare for its students to ultimately perform successfully in professional and career enterprises. Cell Biology and Genetics Lab is a core course in the Biological Sciences and it is a subject that professional schools (e.g., medical, dental and graduate schools) both expect and require. This laboratory course provides practical experiences that will benefit students pursuing healthcare professions, those wishing to enroll in a biology graduate program and those who will seek employment in Biology-related fields. It is hoped that students who complete this course and a major in the biological sciences will ultimately utilize their skills, talents and abilities in service to God and man as teachers, professors, physicians, dentists, physical therapists and in other biological related professions.

Course Objective: The behavior of cells in a given environment is reflective of changes in the expression of the RNAs and/or proteins within the cell. These changes ultimately stem from changes in gene expression. The goals of this lab are for you to begin to: (1) “think like a scientist”, (2) use the cell biology and genetics concepts that you have talked about in the Cell Biology and Genetics courses and (3) build practical skills for a future career in science, as you explore the baker’s yeast *Saccharomyces cerevisiae* as a model for eukaryotic organisms.

Course Format: This course will be “hands on”. First, you will be introduced to classic cellular biology concepts and protocols. It is imperative that you read the lab manual before class (including the references that have been listed therein). Also, after we perform the experiments, you will be responsible for graphing and analyzing the data. The final component of this lab will require that you

work with your group to design and complete your own experiment to answer a scientific question that your instructors will assign. Throughout the course, students will be required to keep a research notebook to collect all data obtained from their work. As is the case with working scientists, you will present/discuss the experiment that you designed with your peers and instructors in a 15 minute oral presentation.

Please note: The instructors reserve the right to modify the format of the course at any time to allow for the enhancement of the learning environment.

Course Progression:

Week of	Topic
26-Aug	NO MONDAY Pre-LAB BUT ALL OTHER LABS WILL MEET Lab introduction and library resources for biologists
2-Sep	NO MONDAY Pre-LAB (Labor Day Holiday) BUT ALL OTHER LABS WILL MEET Biostats and “How to read a paper”
9-Sep	Basic lab skills and paper discussion
16-Sep	Growth Curves
23-Sep	Data Analysis
30-Sep	Cell Death—Lab Notebooks are due.
7-Oct	NO LAB THIS WEEK (Fall BREAK)
14-Oct	MIDTERM EXAM (Monday Oct. 14)-Data Analysis
21-Oct	An Intro to Flow Cytometry
28-Oct	Data Analysis
4-Nov	Propose an experiment
11-Nov	Perform your experiment
18-Nov	NO LAB THIS WEEK (Thanksgiving Holiday)
25-Nov	Preparing your presentation
2-Dec	NOTEBOOKS DUE MONDAY by NOON--FINAL PRESENTATIONS THIS WEEK
9-Dec	DEAD DAYS, STUDY DAY, FINALS BEGIN

Important Dates from the Academic Calendar:

Sept. 5: Last day to drop the class with 100% tuition refund.

Sept. 2: Labor Day (No class)

Oct. 7-8: (No Class)

Nov 26-Dec 1: Thanksgiving (No Class)

Oct. 25: Last day to drop (zero tuition refund)

Specific Course Objectives (By the end of the course the student should be able to perform the following...):

Calculate the rate of cell growth

Determine cell viability

Accurately record and keep lab records
 Write a standard operating procedure (protocol)
 Construct a hypothesis
 Design an experiment
 Present science orally using PowerPoint
 Use statistics and statistic software to analyze data
 Use Biology resources with respect to information literacy
 Read and understand primary scientific literature

MATERIALS REQUIRED: The lab manual, available on MC Moodle, is required for the course. You will also need a calculator, a dedicated lab notebook, an ink pen and a lab pen (Sharpie) for recording experimental findings and notes.

GRADING: A student's grade will be based on the points attained, weighted in the percentages that follow that have been acquired during the progress of the course:

<i>ITEM</i>	<i>PERCENTAGE OF GRADE</i>
<i>Assignments/Quizzes</i>	<i>25%</i>
<i>Participation</i>	<i>15%</i>
<i>Midterm Exam</i>	<i>25%</i>
<i>Experimental design</i>	<i>15%</i>
<i>Presentation</i>	<i>10%</i>
<i>Notebook checks (2)</i>	<i>10%</i>
<i>TOTAL</i>	<i>100%</i>

90% - 100%	A
80% - 89.99%	B
70% - 79.99%	C
60% - 69.99%	D
0% - 59.99%	Failure of the Course

Please note that the instructor reserves the right to alter the grading rubric to enhance the learning experience. Other class assignments and their worth may be announced throughout the semester.

ATTENDANCE: Mississippi College requires students to attend 75% of all class meetings for courses they are enrolled in. If a student misses more than 25% the class meetings for a course they are to receive a failing grade based on attendance. Strict adherence to Mississippi College's class attendance policy is as follows: "Any student whose absences, whether excused or unexcused, exceed 25% of the class meetings will receive a grade of "F" in the course." Attendance in class is expected. For excused absences, the student (not the instructor) is responsible alerting the instructor in advance so that arrangements can be made to make-up the bench work, for requesting any

instructions, assignments, or work missed during an absence and completing them within a week of the due date. Tests missed during an excused absence must be made up within one week. Tests and or assignments missed during an unexcused absence will not be made up. Refer to the Mississippi College Undergraduate Catalog for clarification of any point in relation to attendance.

LATE ASSIGNMENTS: Turn in your assignments on time. Tardy assignments will be given a 10% penalty per day. Please note that if you are absent and an assignment was due, it is still your responsibility to turn in your assignment by the due date or suffer the 10% per day late penalty. The instructor will not accept assignments that are more than a week late.

ACADEMIC INTEGRITY: All students are expected to complete their assignments based on their own skills and knowledge, unless otherwise directed by the instructor. Studying as groups is highly recommended and suggested. However, exams are not group projects; therefore, any academic dishonesty will be dealt with immediately and at the discretion of the instructor. All instances of academic dishonesty will also be reported to the department chair, the division and as appropriate to the college administration (to include the Dean of Academic/Student Affairs or other administrative officials) as necessary. The instructor also reserves the right to remove a student or students from the class as deemed necessary due to acts of academic indiscretion. Mississippi College students should display academic integrity in all situations. Honesty is expected from all students at all times. Dishonesty, such as cheating, plagiarism, and falsifying information, is a serious offense and is subject to severe penalty. Adherence to the Mississippi College “Honesty Policy” (Mississippi College Undergraduate Bulletin) will be followed. Refer to the Mississippi College Undergraduate Catalog for clarification of any point in relation to Academic Integrity.

LAB ETIQUETTE: If you get something out to use, clean it and put it back up when you are finished with it. If you use any dishes, glassware, or reusable machines or containers, then clean them properly and put away. No eating, drinking, applying make-up or anything else other than performing your assigned task with the utmost diligence and attention while in the lab. **Cell phones are not acceptable in class**—even as a timer or calculator. It is an unsafe practice to use them in the lab. Other electronic devices will remain in backpacks, purses, etc. and not be placed on the desk or used during class unless specified by the instructor.

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 or rward@mc.edu or by phone at 601-925-7791.

A copy of this statement is attached on the following page and will be turned into the instructor:

I _____ have read and had explained all of the information and policies outlined in this syllabus. I understand that as a student, that by signing this acknowledgement, I am required to adhere to the policies outlined in this syllabus during the period of my enrollment in this course. If at anytime I feel that I have not been treated in accordance with these policies, I have the right as a student to meet with the instructor, the department chair, the division and as appropriate with the college administration (to include the Vice President of Academic/Student Affairs or other administrative officials) to rectify this problem.

Course Name: _____

Course Number: _____

Date: _____

I _____ have read and had explained all of the information and policies outlined in this syllabus for Biology 307 (Cell Biology and Genetics Laboratory). I understand that as a student, that by signing this acknowledgement, I am required to adhere to the policies outlined in this syllabus during the period of my enrollment in this course. If at anytime I feel that I have not been treated in accordance with these policies, I have the right as a student to meet with the instructor, the department chair, the division and as appropriate with the college administration (to include the Vice President of Academic/Student Affairs or other administrative officials) to rectify this problem.

Course Name: _____

Course Number: _____

Date: _____

Signature: