

# Course syllabus

## Bio Sci 316: Laboratory in Genetics and Cell Biology; Fall 2021 Course Syllabus

### Course description

Laboratory studies in genetics and cell biology using microorganisms, plants, and animals. Hypothesis testing, data collection, computer and literature analyses, and writing of scientific papers. 1 hr dis, 3 hr lab. Prereq: grades of C or better in both Bio Sci 152(P) & Chem 104(P); Bio Sci 315(C) or 325(C).

### Course logistics

Times and locations:

Discussion: Lapham Hall 253, 12:30-1:20 PM, Tuesday (section 601) or Thursday (section 602)

Labs: 1:30-4:20

Section 801: Tuesday, Lapham 466

Section 802: Tuesday, Lapham 468

Section 803: Thursday, Lapham 466

Discussion instructor: Ann Raddant, Ph.D. (she/her) available via email ([raddant@uwm.edu](mailto:raddant@uwm.edu) (<mailto:raddant@uwm.edu>)) or Canvas message

Lap instructors: Cammy Truong, Ph.D. and Vidhya Basak, B.S.

Office hours: Monday 12-1 PM or by appointment. I prefer to meet via [Zoom](https://wisconsin-edu.zoom.us/j/7050593441) (<https://wisconsin-edu.zoom.us/j/7050593441>) but will be available in my office during these times.

Required materials: a lab coat is required for the lab portion of this course beginning on 9/9. It can be purchased via [eCampus](https://uwm.ecampus.com/course-list?sbc=1&c=3965925|3965926) (<https://uwm.ecampus.com/course-list?sbc=1&c=3965925|3965926>).

### Learning outcomes

1. Utilize primary articles and manufacturer protocols to perform experiments with biological materials
2. Document and explain experimental results
3. Critically analyze experimental design and data from published literature
4. Generate a novel hypothesis related to a topic in cell biology or genetics
5. Identify and describe appropriate techniques to test a novel hypothesis

Specific learning objectives for individual assignments will be provided.

## Course format

Since this is a discussion and lab-based course, active participation is essential. That said, if you are unable to attend due to any health and safety related reason please reach out to me and your lab instructor as soon as possible.

### Prep work

To facilitate active discussion in the classroom, you will have prep work to complete most weeks. This prep work will include things like video lectures with embedded quiz questions, as well as reading or other assignment types.

### Discussion

We will use our time together in the classroom for things like small group activities and practice problems.

### Lab

You will work with a lab partner to complete lab experiments.

## [Course schedule \(https://uwmil.instructure.com/courses/423855/pages/course-schedule\)](https://uwmil.instructure.com/courses/423855/pages/course-schedule)

This schedule is my best guess at how the semester should go. Given the uncertainty present in this semester, this is subject to change. Changes to the schedule and/or format of the course will be communicated via Canvas announcements.

## Grading

We will work together to assign points/weights to each assignment as you complete them throughout the semester. My expectation is that students who actively participate and complete all of the assignments in the course will be successful. Letter grades will be assigned as shown here.

93-100%: A	87-89.99%: B+	77-79.99%: C+	67-69.99%: D+	<60%: F
90-92.99%: A-	83-86.99%: B	73-76.99%: C	63-66.99%: D	
	80-82.99%: B-	70-72.99%: C-	60-62.99%: D-	

## Cell phone/tablet/computer policy

During some portion of this course, the use of electronic resources in the classroom can enable learning. In these cases, please stay on task and do not interact with social media or email accounts.

I recommend taking notes by hand.

Unauthorized use of cell phones/laptops/tablets is not permitted. Please silence all devices before entering the classroom. Any student that disrupts class with noise from anything with a battery may

be asked to leave lecture.

## Time commitment

For each credit hour earned in the course, students are expected to invest at least 2 hours of work per week in addition to their time in lecture and laboratory courses. For this 2-credit course (discussion and lab), students are expected to complete *at least* 4 hours of study time *per week* to meet the learning goals of this course.

## University policies

### *Students with disabilities*

The University of Wisconsin Milwaukee supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Please contact me in person or via email. I will work either directly with you or in coordination with the Accessibility Resource Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

### *Academic misconduct*

My goal for you in this course is for you to develop an understanding of how biologists use lab methods to better understand biological systems. The best way for you to achieve that goal is to complete the assignments and the activities in the course. If you do the work with the intention of learning, I am certain that you will achieve the goal. If you click mindlessly or Google until you find an answer, you will likely feel frustrated and unsuccessful. Collaborating with peers to reach a deeper understanding is expected, as is the utilization of appropriate resources throughout the course. Academic misconduct looks different in an open resource environment. Actions such as having a different person complete your quiz or answer specific questions are both cheating, as well as posting exam materials for other students to utilize. Plagiarism in this course includes submitting any work completed by another individual, such as projects from previous semesters or text copied and pasted from any source. Violations of the academic honor code carry severe sanctions, including failing a course or even suspension or dismissal from the University. Specific UWM policies can be viewed at <http://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/> (<http://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/>).

### *COVID-19*

Panther Community Health and Safety Standards: UWM has implemented reasonable health and safety protocols, taking into account recommendations by local, state and national public health authorities, in response to the COVID-19 pandemic. As a member of our campus community, you are expected to abide by the Panther Interim COVID-Related Health & Safety Rules, which were developed in accordance with public health guidelines. These standards apply to anyone who is physically present on campus, UWM grounds, or participating in a UWM-sponsored activity:

- All individuals visiting UWM facilities must wear face coverings while indoors
- Unvaccinated students coming to campus are required to test weekly for COVID-19
- You should check daily for COVID-19 symptoms and not come to campus if you are feeling sick.

Additional university policies regarding religious observances, students called to active military duty, incomplete grades, discriminatory conduct, complaint and grade appeal procedures, and LGBT+ resources can be found at <http://uwm.edu/secu/syllabus-links/> [\(http://uwm.edu/secu/syllabus-links/\)](http://uwm.edu/secu/syllabus-links/).

## Disclaimer

Policies and schedules contained within this syllabus are subject to change due to unforeseen circumstances. I reserve the right to make these changes and communicate them to the class via the course Canvas site and/or email. There is also a potential for us to move fully online at some point during this semester. The online format (synchronous vs. asynchronous) will depend on several factors, including student preference and instructor availability.

# Course schedule

There are more Tuesday meeting days than Thursdays during this term. Because of this, the Thursday section will be "ahead" of the Tuesday section for the duration of the semester. The Tuesday section will not meet on Tuesday, 11/23. Please refer to the Modules page for due dates for specific assignments.

Thursday date	Tuesday date	Discussion	Lab
9/2	9/7	Course introduction	Cell biology review
9/9	9/4	Graphs and dilutions	Pipetting and dilutions, graphing
9/16	9/21	Introduction to yeast as a model organism	Meet the yeast, microscopy
9/23	9/28	Forward genetics, metabolism	Begin yeast mutagenesis experiment
9/30	10/5	Prepare for journal club	Isolate mutants, journal club
10/7	10/12	Generate hypotheses for lab experiments	Analyze mutants
10/14	10/19	Gene expression analysis	Prep samples for western blot
10/21	10/26	Methods discussion	Western blot, set up PCR reaction
10/28	11/2	PCR discussion, introduction to CRISPR	DNA gel, PCR cleanup
11/4	11/9	Cloning discussion	Restriction digest, gel, set up ligation reaction
11/11	11/16	CRISPR activity	Transformation
11/18	11/30	Workshop CRISPR experimental plans	Select mutants
12/2	12/7	Workshop CRISPR experimental plans	Final observations
12/9	12/14	Wrap up	Wrap up