

Biology 6000 – Molecular Cell Biology I, Fall 2020

Instructor: Dr. Karen Myhr

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Course website: canvas.wayne.edu/courses/134042

The goal of this course is for you to build a foundation of molecular cell biology to build on for the rest of your career. The **objectives of the course** are to create a framework of the components of eukaryotic cells and how they work; to build the skills to analyze the primary literature to continuously add to your knowledge of the cell throughout your career; and to be able to design experiments to contribute to new knowledge of the cell. To meet these objectives you will create your own representation of a cell, read articles from the primary literature and discuss them asynchronously in Perusall and synchronously in class, design experiments, and work on activities. Your success at meeting the objectives will be evaluated by assignments, which will predominantly be your creative representation of the cell, assignments (mostly data and article summaries and experimental design), and asynchronous and synchronous discussions.

Learning Objectives Students will be able to:

1. **Clearly describe the structure and function of a cell** with examples.
2. **Analyze and evaluate** the primary literature, including describing the hypothesis, approach, results and conclusions of a set of experiments; and identifying control experiments, and whether the results support the authors' conclusions.
3. **Design experiments**, and describe the hypothesis, approach to test the hypothesis and the results that would support or refute the hypothesis
4. **Independently find and synthesize information** throughout the course as you work on the other objectives.
5. **Contribute in a team**, and describe team experiences in a personal statement or interview.

Topics for the course include

- Cell and macromolecule overview & metabolism
- Cellular respiration and photosynthesis (2 wks.)
- Intracellular transport
- Membrane transport and action potentials
- DNA → RNA → proteins (focus on proteins, 2 wks.)
- Regulation of gene expression
- Intracellular Signaling (within cells)
- Intercellular signaling (between cells)
- Cell division and inheritance

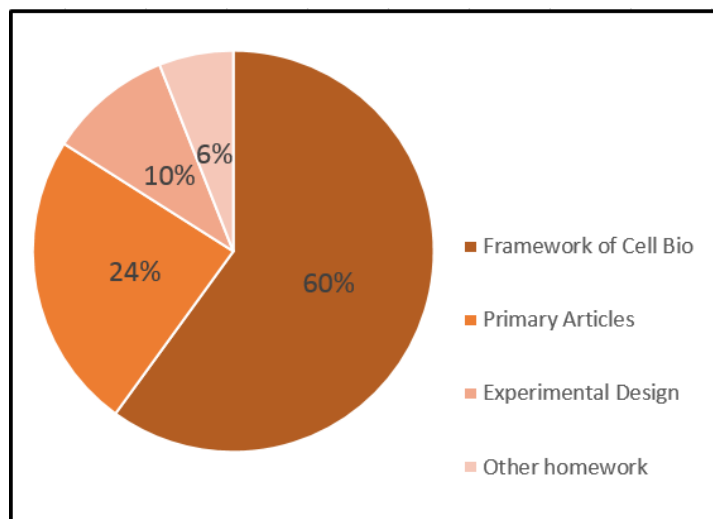
Lectures meet from 10:00-11:15 am on Mondays and Wednesdays in Canvas Zoom. Usually class will be on Mondays, and drop-in hours will be on Wednesdays. See Canvas for schedule updates.

Required: Molecular Biology of the Cell by Alberts, or an equivalent graduate-level cell and molecular biology textbook.

A computer (A phone will not support your work. A tablet may be enough. You will be reading and annotating articles together online and will need a browser and big enough screen to work with annotations and figures at the same time.) Access to a good internet connection and a browser that works well with Canvas. The free MS Teams app. (The browser version does not have all the features we will use.) The ability to connect to video conferences with audio, video and chat.

My drop-in hours are in Canvas Zoom on class days when we do not have class sessions (usually Wednesdays), or by appointment when necessary. Drop-in hours are when I hang out and talk to any students who show up. You can come for part of all of the time, no appointment necessary. You can come alone or bring classmates. This time is great for reviewing for going over any concept or skill for the course, or working through assignments. We can also talk about careers and opportunities to get involved on campus.

Grade Breakdown



Category	Points	%
Framework	300	60%
Articles	120	24%
Design	50	10%
Homework	30	6%
Total	500	100%

Grades: A 92.5-100% A- 90.0-92.5%
 B+ 87.5-89.9% B 82.5-87.5% B- 80.0-82.5%
 C+ 77.5-79.9% C 72.5-77.5% C- 70.0-72.5%
 D+ 67.5-69.9% D 62.5-67.5% D- 60.0-62.5%
 F is below 60.0%

I do not curve the grades. There is no extra credit. Everyone can earn an A, if they perform well.

1. Create a representation (framework) of the core concepts of cell biology

- The **purpose** of this objective is to help you create an organized foundation of cell biology, so as you continue to learn more, you have a strong framework to add new information to throughout your career.
- The **approach** will be to allow you to create your representation in any format that works for you. I will provide some examples and suggestions, but anything goes - from writing paragraphs, creating concept maps, creating sculptures, producing podcasts, to performing songs. You will create individual representations, and share regularly with a support team of about four students for feedback.
- You will be given **guides** for each topic. Guidance will be in the form of more specific learning objectives and the concepts and elements that are required for each topic. Because some students may be out of their comfort zone with a portfolio instead of exams, there will be check-ins with feedback early in the semester, so everyone knows they are on track.
- You will be **graded** on periodic check-ins (reports) on your project that include evidence highlighting your larger body of work, and your work supporting your team. If you cannot submit your whole body of work online, you will be able to submit representative parts for

review, for instance pictures of sculptures. You will have a **rubric** to evaluate your progress and support your team as you work.

2. Analyze and evaluate research articles

- The **purpose** of this objective is to help you build the essential skills of reading, analyzing and communicating the experiments that led us to understand cells. These skills will support your success in a broad range of work in biology, from cell biology to any science and from research to business.
- The **approach** will be to read articles on your own; and discuss them with the class through group annotations. This will be done in the free software, Perusall, which you will access through Canvas in your browser.
- You will be given **guides**. The guides will take you through the necessary steps of analyzing an article. You will have guiding questions for articles we work on together in Perusall.
- You will be **graded** on summaries, peer feedback, and discussions of articles we work on together. The semester will culminate with you selecting and summarizing an article on your own to share with your team and the class.
- As we read articles, we will focus on the hypothesis, approach, results and conclusions.

3. Design experiments

- The **purpose** of this objective is to help you build the essential skills of designing, justifying and explaining experiments that could further our understanding of cell. These skills will apply to a broad range of work in biology, from cell biology and beyond.
- The **approach** will be to design experiments and share them with each other for feedback. The formats will vary from team to individual designs. Feedback will be in formats such as class discussion, peer review in Canvas, and mock study sections.
- You will be given **guides** in class and in the assignments. We will discuss what makes a good experimental design.
- You will be **graded** on experiments you design and write up individually with the support of your team.
- Your experiments will include the gap in our knowledge, justification, hypothesis, approach, and results that would support and results that would refute the hypothesis.

4. Independently find and synthesize information

- The **purpose** of this objective is to help you build your information skills, so you are able to gather and evaluate information on cell biology from textbooks, reviews and the primary literature, and synthesize it for your own creations.
- The **approach** will be integrated throughout the course, as you create your representations of the cell, read the literature, select articles on your own, and justify your experiments in the context of what is known.
- We will **discuss strategies** in class and assignments for finding and integrating information.
- You will be **graded** on your ability to find and synthesize resources as a component of your representation of cell biology, your independent article summary and experimental designs.

General Policies:

1) **Anyone caught cheating or plagiarizing will automatically receive a failing grade for the assignment or class, and may be expelled from the University.**

Your written work will be submitted to plagiarism software in Canvas for an evaluation of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in the restricted access database of the plagiarism software in Canvas, for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Because our goal is to help you learn how to not plagiarize, information on how to avoid plagiarism will be provided in class and on Canvas. If you do not understand how to avoid plagiarism, please ask for help. **For discussions of cheating and plagiarism see the class Canvas site, and the "Student Code of Conduct," which is available at dos.wayne.edu/conduct.**

2) **Email guidelines:** For privacy, legal reasons, professionalism, and to avoid having your email filtered to spam, **you must email me from your WSU account.** I will respond to most emails within two business days. After two business days, you may email me again. I expect emails to be in a professional style, with your course number and information about what the issue is in the subject. Please include which section you are in, e.g. **"BIO 4120, Section 002: Question on Kidney Lecture"**, a proper greeting, e.g. "Dear Professor Myhr," a proper salutation, e.g. "Sincerely, Chris Smith," correct punctuation including capitalization and no texting abbreviations. Emails that do not follow these rules may take longer get a reply or be returned for correction. If I cannot figure out what you want, I cannot help you. Following these guidelines will improve your success at WSU and beyond.

Please post questions that require a discussion to the Discussions boards in Canvas or talk to me during drop-in to discuss these issues. I do not answer this type of question by email, because email is not conducive to discussion. This includes questions on content and study or writing strategies. This may require planning ahead so that you can get your answers before assignment deadlines.

3) Because I converted much of your work to asynchronous work, I expect you to be able to get the help you need from me during drop-in hours when we do not have class. Note that even though we will often work together with many people in drop-in hours on common challenges, I am happy to set up a private breakout to talk one-on-one. You need to let me know you want to do this as early in the session as possible so we have time to talk. If you cannot come to drop-in hours, you need to set up an appointment by email.

4) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to my attention at kmyhr@wayne.edu by September 18, 2020 or as soon as possible as the situation arises. If you have a documented disability that requires accommodations, you should register with Student Disability Services for coordination of your academic accommodations. [The Student Disability Services \(SDS\) office](#) is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once

you have your accommodations in place, I will be glad to meet with you privately to discuss your special needs. Please let me know of all disabilities that I can help you with as soon as possible. I cannot always accommodate on short notice, and I cannot accommodate issues I do not know about. Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students: studentdisability.wayne.edu/

5) Problems and challenges regarding the grading of any assignment must be brought to my attention at kmyhr@wayne.edu explaining the issue. You need to convince me there was an error in the grading, not simply that you want more points. **Once you talk to me about the work, you are no longer eligible for a regrade. When I regrade any work I may regrade the whole assignment in addition to the section you are protesting, and your grade may drop.**

6) **Withdrawals:** If you withdraw you will receive a WN on your transcript if you never completed any assignment; a WP if you have greater than 60% of the points possible at the time of your request; or a WF if you have less than 60% of the points possible at the time of your request.

In Academics: select "Course Withdrawal" from the Registration Menu under Student Resources. A *****SMART Check***** is required. After the registrar processes your request they send it to your instructor to assign a grade. This can take up to five business days. [See deadlines in the academic and registration calendar.](#)

7) University closures and pandemic policies will be publicized through:

- the university emergency broadcast system (broadcast.wayne.edu)
- WSU Homepage (www.wayne.edu)
- the University Newsline (313) 577-5345
- WDET-FM (Public Radio 101.9)

If the University is officially closed, there is a university outage of critical services, or there is a widespread emergency I will reschedule deadlines and announce them through our Canvas course site. We are in a pandemic, please contact me if you need help. The university has many resources and I can help you get what you need.

8) **Professional behavior** is expected. All students must show respect in language and attitude towards the instructor and their fellow students. Disrespectful students will be asked to leave the class session, and will lose their opportunity to turn in any missed assignments.

9) Updates and corrections to this syllabus will be posted on the course Canvas site or in our MS Teams course site. You are responsible for checking Canvas announcements and your University email account. I recommend checking at least once each business day.

I will post a detailed schedule, reading and learning objectives for each unit on Canvas.

10) For any and all issues not covered in this syllabus, refer to the "Student Code of Conduct", which can be found at doso.wayne.edu/assets/codeofconduct.pdf