

## **BIOE 206: Cellular Bioengineering**

**Meeting time:** Tuesdays and Thursdays: 9:30-10:50 AM

**Location:** 3031 Campus Instructional Facility

**Credit hours:** 3

**Semester:** Fall 2026

**Prerequisite:** MCB 150

**CRNs:** CB1 58750; CB2 81505

**Course website:** <https://canvas.illinois.edu/courses/72801>

### **Course Staff**

|                           |                                                                                                                                                                                                                                                          |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Instructor</b>         | Susan Leggett, Ph.D.                                                                                                                                                                                                                                     |
| <b>Office Hours</b>       | By appointment                                                                                                                                                                                                                                           |
| <b>Office Location</b>    | 2240 Everitt Laboratory                                                                                                                                                                                                                                  |
| <b>Email</b>              | <a href="mailto:sleggett@illinois.edu">sleggett@illinois.edu</a>                                                                                                                                                                                         |
| <b>Teaching Assistant</b> | Rana Abbed                                                                                                                                                                                                                                               |
| <b>Office Hours</b>       | TBA                                                                                                                                                                                                                                                      |
| <b>Office Location</b>    | 3248 Everitt Laboratory                                                                                                                                                                                                                                  |
| <b>Email</b>              | <a href="mailto:rabbed2@illinois.edu">rabbed2@illinois.edu</a>                                                                                                                                                                                           |
| <b>Teaching Assistant</b> | Edwin Quiñones Cruz                                                                                                                                                                                                                                      |
| <b>Office Hours</b>       | TBA                                                                                                                                                                                                                                                      |
| <b>Office Location</b>    | 3248 Everitt Laboratory                                                                                                                                                                                                                                  |
| <b>Email</b>              | <a href="mailto:equino8@illinois.edu">equino8@illinois.edu</a>                                                                                                                                                                                           |
| <b>Course Assistants</b>  | Ved Law, Email: <a href="mailto:vedlaw2@illinois.edu">vedlaw2@illinois.edu</a><br>Aashna Bhatt, Email: <a href="mailto:abhat67@illinois.edu">abhat67@illinois.edu</a><br>Yuliia Kohut, Email: <a href="mailto:ykohu@illinois.edu">ykohu@illinois.edu</a> |

### **Course Information**

- Canvas will be used for course management: [Course Website](#)
- Please refer to the links embedded in this document for additional information regarding BIOE 206 and University policies; Embedded links appear as [blue, underlined text](#)

### **Course Description**

Molecular and cellular biology focusing on instrumentation and measurement techniques: gene expression, translation, and regulation; cellular energetics and enzyme kinetics; membrane transport and cell signaling; cytoskeleton and the cell cycle; cell biology fundamentals emphasizing modern imaging and measurement systems to quantify cellular function. Credit is not given for both [BIOE 206](#) and [MCB 252](#). Prerequisite: [MCB 150](#).

### **Course Objectives**

- Demonstrate an understanding of molecular and cellular biology.
- Demonstrate an understanding of the forces governing the structure and function of biomacromolecules.
- Demonstrate an understanding of how enzymes function and how information is communicated from cell-to-cell.
- Explain how genetic information is replicated, stored, and expressed in cells.
- Demonstrate an understanding of cell physiology.

- Demonstrate introductory knowledge of current methodologies and measurement techniques used in bioengineering.
- Learn how principles of molecular and cellular biology underly advances in bioengineering.

### Textbook

- *Life: The Science of Biology*, 12<sup>th</sup> Edition (2023); Hillis, Heller, Hacker, Hall, Laskowski, O'Connell, Sadava

### Key In-class Expectations

- **Class meetings:**
  - Class meetings are in-person lectures (see schedule and attendance policies).
  - Midterm exams and exam reviews will take place during normal class hours. The final exam date will be scheduled in accordance with guidelines defined by the Office of the Registrar.
  - Students must have their valid I-Card present and available for identification during all exams.
- **Attendance:**
  - Attendance is required at lectures. Students are encouraged to attend every class as meetings will include additional material beyond what is presented on slides. Exams will include information covered during lectures and in-class activities, and lectures are not recorded. Students are encouraged to ask/answer questions during class.
- **Class etiquette:**
  - Disruptive behavior will not be tolerated during class. Any case of disruptive behavior during class sessions or exams will lead to a zero in attendance for the day or a zero on the exams. No exceptions.

### Grading

Breakdown of the percent values of total grade for each course component are as follows:

- **Homework assignments:** 32%
  - Submitted work should be neat, easy to follow, legible, and submitted as one PDF file. Students should verify after uploading the assignment that all pages are included and displaying properly.
  - Unless otherwise stated, **homework is due to be submitted through Gradescope via Canvas by Thursdays at 11:59 PM.** Everyone is responsible for submitting their own homework on time.
- **Midterm exams (3):** 40%
  - Each midterm exam is worth 20%. The lowest midterm exam score will be dropped.
  - Format: Approximately 50% multiple-choice and 50% free-response questions. Midterm exam questions will assess both individual topic understanding and cumulative knowledge of the corresponding section material. **iCards are required for each exam and must be presented when submitting the exam.**
- **Cumulative final exam:** 20%
  - Format: Approximately 50% multiple-choice and 50% free-response questions.
  - The final exam will be held at the time assigned in the official University of Illinois Office of the Registrar's **final exam schedule: Friday Dec. 11, 2026 from 1:30pm-4:30pm. iCards are required for the final exam and must be presented when submitting the exam.**
    - See Student Code (§ 3-201) for university final examination policy details: <https://studentcode.illinois.edu/article3/part2/3-201>
- **In-class assessments (iClicker):** 8%
  - In-class participation and assessments will be recorded using iClicker. These activities are designed to keep you engaged with course material, provide immediate feedback on your understanding, and contribute to your overall grade. All iClicker activities are graded by default unless announced as participation-only.
  - **Each graded activity has two parts:**

- **Participation Credit (50%):** Awarded for submitting answers to all questions, regardless of correctness.
- **Accuracy Credit (50%):** Based on correctness. Answering 70% or more correctly earns full accuracy credit; below 70%, accuracy credit is awarded proportionally to the number of questions answered correctly.
- The lowest two iClicker assessment scores will be dropped.
- **Occasional participation-only checks**
  - At times, short activities may be given to check understanding of the day's material or to support learning (for example, at the end of class or during a review session). These activities are not graded. When this occurs, it will be announced at the start of the activity.

**Final grades will be assigned according to the following scale, where X indicates the numerical percentage:**

| A                     | B                     | C                     | D                     | F            |
|-----------------------|-----------------------|-----------------------|-----------------------|--------------|
| A+ : $X \geq 97$      | B+ : $87 \leq X < 90$ | C+ : $77 \leq X < 80$ | D+ : $67 \leq X < 70$ | —            |
| A : $93 \leq X < 97$  | B : $83 \leq X < 87$  | C : $73 \leq X < 77$  | D : $63 \leq X < 67$  | F : $X < 60$ |
| A- : $90 \leq X < 93$ | B- : $80 \leq X < 83$ | C- : $70 \leq X < 73$ | D- : $60 \leq X < 63$ | —            |

Grades are calculated exactly as specified in the syllabus and will not be rounded up to the nearest whole number. No rounding will be performed on any assignment, quiz, exam, or final grade. Requests for rounding or “bumping” grades will not be considered at any point during or after the semester. Please do not contact the course staff regarding such requests; they will not receive a response.

### Assignment submission policies

Unless prior consent/approval of an instructor is obtained, the following applies:

- All assignments must be submitted through Gradescope. A direct link to each assignment will be provided on Canvas. Submissions made via email or Canvas will not be accepted unless explicitly authorized.
- Submitted work should be neat, easy to follow, legible, and submitted as one PDF file. If submitting handwritten work (e.g., free-response answers), a scanning app (not phone camera) should be used.
- Students should verify after uploading the assignment that all pages are included, all figures/text are displaying properly, and that the correct assignment was uploaded. Use the Gradescope preview to verify.
- If any issues are encountered with file upload, students should email both TAs directly prior to the homework deadline. This email should include a timestamped screenshot of the Gradescope error, your completed PDF file as an attachment, and a brief description of the issue. Emails regarding homework submissions that are received after the indicated deadline are subject to the late policy.

### Late Work

Unless prior consent/approval of an instructor is obtained, the following applies:

- Assignments submitted within 24 hours past the deadline will incur a 10% penalty.
- Assignments submitted 24-48 hours past the deadline will incur a 20% penalty.
- Assignments submitted more than 48 hours past the deadline will not be considered.

### Deadline Extensions

Deadline extensions may be granted if you have a valid reason for needing an extension on an assignment. Validity of the request will be determined by the instructor and university policies (e.g., a medical issue, family emergency, religious observations, or unforeseen circumstances). The course instructor must receive reasonable

requests for deadline extensions before the assignment deadline has passed, at least 24 hours before an assignment is due. The decision to grant a deadline extension is at the discretion of the course instructor.

### Regrade Requests

- A grading rubric will be used to evaluate student answers to homework questions, exam questions, and in-class assessments. The rubric will define point values and criteria for full and partial credit.
- Regrade requests are possible for mistakes in grading, and not a negotiation of how many points something is worth, the number of points deducted, or requests for rounding grades.
- A point-value breakdown will be defined in the grading rubric. Intermediate partial points will not be given or adjusted based on regrade requests. (e.g., if 0.5 is the partial point value, 0.25 will not be granted).
- The course staff will reconsider a student's work provided that the request is clear, concise, and professional. Unprofessional requests will not be considered for regrades. The student should clearly and concisely state the reasoning behind their request.
- Students may ask for clarification if a grader's comments are not clear, but that must be done outside of a formal regrade request, preferably by email or office hours. After clarification, a regrade request may be submitted if the student believes there was a mistake in the grading of their work.
- Regrade requests are due within 48 hours after grades are posted. Any regrade requests received after 48 hours following grade posting will not be considered.

### Generative AI Use

- Students are expected to formulate their own responses on homework and assignments. Copying and submitting AI-generated text as one's own work is prohibited, and generative AI may not be used during exams.
- AI may be used for studying, learning, and brainstorming, but generated content may be inaccurate or not fully aligned with course material. Students should rely primarily on course materials provided by the instructor and TAs.
- Unauthorized AI use may constitute academic dishonesty and will be addressed according to the University of Illinois Student Code and Academic Integrity Policy.

### Absence Policy

In-person attendance is required in this course. The instructor must be notified of planned and unplanned absences in order to ensure reasonable accommodations for legitimate circumstances. The Student Code Article 1, Part 5 <https://studentcode.illinois.edu/article1/part5> outlines University guidelines regarding class attendance policies and those circumstances in which a student may be eligible to obtain a letter from the Office of the Dean of Students for missed class. If eligible, students must request all absence letters within 10 business days of their return to class. Additional information regarding absence letters can be found here: <https://odos.illinois.edu/resources/students/absence-letters>. Approval of make-up work or excusal of missed activities is at the discretion of the instructor, consistent with university policy.

**Planned absences:** Notify the instructor as soon as possible before class if you expect to miss a scheduled class for a religious observance, approved service as a volunteer emergency worker, or formal participation in scheduled activities of officially recognized university groups (e.g., athletic contests). Documentation or use of the Office of the Dean of Students request form may be required for certain accommodations.

**Unplanned absences:** Please notify the instructor as soon as possible if you will miss class unexpectedly due to illness, family emergency, or other unforeseen circumstances. The course instructor has the right to request appropriate documentation when a student requests an excused absence (e.g., medical notice).

### Professionalism and Contact Methods

The Instructor and TA will treat you with respect and expect the same from you. We will not tolerate rude or disruptive behavior and we expect professional language and tone in email communications with the instructors. If you have a concern or complaint about any aspect of the course, we encourage you to communicate openly with

the instructors before seeking outside intervention. Our goal is to provide a supportive learning environment – please help us do so.

Students may reach out to the course instructor via email and **must** use a subject line beginning “**BIOE206:**” and be followed by a clear and concise statement of the purpose of the email. Emails should be addressed to both the instructor and course TAs, except for circumstances in which the student is only comfortable communicating with the instructor. Questions regarding homework, grading, and assignments should be directed to the course TAs and course assistants, not the instructor. Students may not flag email correspondence as high priority unless there is a genuine urgency, such as a personal emergency that directly affects your ability to attend class, complete assignments, or participate in exams. Students who fail to follow these instructions may not receive a response to their email.

Canvas Discussions are encouraged as a useful tool to ask questions about the course and work with peers.

### Academic Integrity

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. The Student Code can be found at the following link <http://studentcode.illinois.edu/>. Students should pay particular attention to Article 1, Part 4: Academic Integrity: <https://studentcode.illinois.edu/article1/part4>.

- Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <https://studentcode.illinois.edu/article1/part4>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.
- A quick reference guide to academic integrity is available at the following link: <https://provost.illinois.edu/policies/policies/academic-integrity/students-quick-reference-guide-to-academic-integrity/>
- Students are expected to submit homework and assignments that reflect their own understanding. Copying another student’s work, using unauthorized resources, sharing or obtaining exam content, or submitting work that is not one’s own constitutes academic dishonesty.

### Laptops, Tablets, and Mobile Devices

Laptops, tablets, and mobile devices may be used in class for note-taking, accessing course materials, or participating in iClicker assessments. All devices must be silenced during class. Use of devices for activities that are disruptive, distracting, or disrespectful to others is not permitted. If such use occurs, you may be asked to leave the classroom.

Use of electronic devices (e.g., electronic glasses, watches, calculators, mobile phones, tablets, laptops) is prohibited during exams unless they are required for a pre-approved medical accommodation. Students who require these devices must notify the instructor and TA at the beginning of the course and provide appropriate documentation.

### Statement of Inclusion

As the state’s premier public university, the University of Illinois at Urbana-Champaign’s core mission is to serve the interests of the diverse people of the state of Illinois and beyond. The institution thus values inclusion and a pluralistic learning and research environment, in which we respect the varied perspectives and lived experiences of UIUC community members and global workforce. We support access to varied worldviews, histories, and cultural knowledge across a range of social groups including race, ethnicity, gender identity, sexual orientation, abilities, economic class, religion, and their intersections.

<https://studentaffairs.illinois.edu/about/inclusive-excellence> and <https://access.illinois.edu/>

If you feel that you or any other individual’s contribution is not being valued for any reason, please speak with me directly or submit anonymous feedback. You can also report these behaviors to Campus Belonging Resources (<https://access.illinois.edu/compliance/accommodations-support/campus-belonging/>) Based on your report,

Members of the Office of the Vice Chancellor for Access, Civil Rights & Community staff will follow up and reach out to students to make sure they have the support they need to be healthy and safe. If the reported behavior also violates university policy, staff in the Office for Student Conflict Resolution may respond as well and will take appropriate action.

### Students with Disabilities

The University of Illinois is committed to ensuring that all students, including those with disabilities, do not experience barriers to learning and participating fully in class. If you have a letter of accommodation from Disability Resources and Educational Services (DRES) and have not already given it to me, please do so within the first two weeks of class to ensure your accommodation needs are met. If needs arise during the course, students are encouraged to reach out to DRES to apply for services as soon as possible to ensure that disability-related concerns are properly addressed. To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact DRES as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-1970, email: disability@illinois.edu, or go to the DRES website.

If you are concerned you may have a disability-related condition that is impacting your academic progress, you can talk with someone at the Counseling Center, McKinley Mental Health, or DRES about how to see a provider in order to obtain a diagnosis or get your questions answered.

### Family Educational Rights and Privacy Act (FERPA)

Please visit <http://registrar.illinois.edu/ferpa> for information about the Family Educational Rights and Privacy Act (FERPA).

### Religious Observances

It is the policy of the University of Illinois Urbana-Champaign to reasonably accommodate its students' religious beliefs, observances, and practices that conflict with a student's class attendance or participation in a scheduled examination or work requirement, consistent with state and federal law. Students should make requests for accommodation in advance of the conflict to allow time for both consideration of the request and alternate procedures to be prepared. Requests should be directed to the instructor. The Office of the Dean of Students provides an optional resource on its [website](#) to assist students in making such requests.

### Sexual Misconduct Reporting Obligation

The University of Illinois is committed to combating sex-based misconduct. Faculty and staff members are required to report any instances of sex-based misconduct to the University's Title IX Office. In turn, an individual with the Title IX Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: [wecare.illinois.edu/resources/students/#confidential](http://wecare.illinois.edu/resources/students/#confidential). Other information about resources and reporting is available here: [wecare.illinois.edu](http://wecare.illinois.edu).

### Mental Health

Significant stress, mood changes, excessive worry, substance/alcohol misuse or interferences in eating or sleep can have an impact on academic performance, social development, and emotional wellbeing. The University of Illinois offers a variety of confidential services including individual and group counseling, crisis intervention, psychiatric services, and specialized screenings which are covered through the Student Health Fee. If you or someone you know experiences any of the above mental health concerns, it is strongly encouraged to contact or visit any of the University's resources provided below. Getting help is a smart and courageous thing to do for yourself and for those who care about you.

- Counseling Center (217) 333-3704

- McKinley Health Center (217) 333-2700
- 988 Suicide & Crisis Lifeline: call or text 988
- Rosecrance Crisis Line 815-720-4953 | TTY: 217-352-4217

If you are in immediate danger, call 911.

\*This statement is approved by the University of Illinois Counseling Center

### Community of Care

As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior concerns you, whether in regard to their well-being or yours, we encourage you to refer this behavior to the Connie Frank CARE Center (formerly the Student Assistance Center) in the Office of the Dean of Students. You may do so by calling 217-333-0050 or by submitting an [online referral](#). Based on your report, staff in the Student Assistance Center will reach out to offer support and assistance.

Further, as a Community of Care, we want to support you in your overall wellness. We know that students sometimes face challenges that can impact academic performance (examples include mental health concerns, food insecurity, homelessness, personal emergencies). Should you find that you are managing such a challenge and that it is interfering with your coursework, you are encouraged to contact the [Connie Frank CARE Center](#) (formerly the Student Assistance Center) in the Office of the Dean of Students for support and referrals to campus and/or community resources.

### Disruptive Behavior

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office for Student Conflict Resolution (<https://conflictresolution.illinois.edu>; [conflictresolution@illinois.edu](mailto:conflictresolution@illinois.edu); 333-3680) for disciplinary action.

### Additional Resources for Student Success

I aim to support students in, and out of, the classroom, for their intellectual growth and personal development. When appropriate, I will help connect students with counselors or advisors, work with students during exceptional circumstances to accommodate their individual needs and provide additional resources for academic success.

- I recognize that students from underrepresented minorities, underprivileged backgrounds, and/or of first-generation status may face unique challenges in academia, such as navigating the hidden curriculum.
- Please see me, or submit an anonymous request, if you would like help finding additional resources to address any concerns that may be limiting your academic success or personal well-being.

If you are interested in obtaining information to improve writing, study skills, time management or organization, the following campus resources are available to all students:

Writer's Workshop

Undergrad Library 217-333-8796

<https://writersworkshop.illinois.edu/> <https://dres.illinois.edu/>

<http://www.counselingcenter.illinois.edu/outreach-and-prevention/interactive-resources>

Also, most college offices and academic deans provide academic skills support and assistance for academically related and personal problems. Links to the appropriate college contact can be found by going to this website and selecting your college or school: <https://illinois.edu/academics/academics.html>

If you are experiencing symptoms of anxiety or depression or are feeling overwhelmed, stressed, or in crisis, you can seek help through the following campus resources:

Counseling Center  
206 Fred H. Turner Student Services Building  
7:50 a.m.-5:00 p.m., Monday through Friday  
Phone: 333-3704

McKinley Mental Health  
313 McKinley Health Center  
8:00 a.m.-5:00 p.m., Monday through Friday  
Phone: 333-2705

McKinley Health Education offers individual consultations for students interested in learning relaxation and other stress/time management skills, call 333-2714.

### Content Warning

"If you are a student with a disability (or would qualify as a student with a disability) who will be significantly affected by traumatic course content such as (specific reading/video/blog) or words (imagery/tone/situations) please contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-1970, email [disability@illinois.edu](mailto:disability@illinois.edu) or go to the [DRES website](#)."

### Emergency Response Recommendations

Emergency response recommendations and campus building floor plans can be found at the following website: <https://police.illinois.edu/em/run-hide-fight/>. I encourage you to review this website within the first 10 days of class.

### Land Acknowledgement Statement

I/We would like to begin today by recognizing and acknowledging that we are on the lands of the Peoria, Kaskaskia, Piankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. These lands were the traditional territory of these Native Nations prior to their forced removal; these lands continue to carry the stories of these Nations and their struggles for survival and identity. As a land-grant institution, the University of Illinois has a particular responsibility to acknowledge the peoples of these lands, as well as the histories of dispossession that have allowed for the growth of this institution for the past 150 years. We are also obligated to reflect on and actively address these histories and the role that this university has played in shaping them. This acknowledgement and the centering of Native peoples is a start as we move forward for the next 150 years.

### Copyright Statement

**© 2022 Professor Susan Leggett. All rights reserved.** No part of the materials used in this course may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without written permission from the copyright holder. You are not allowed to upload, post or transmit materials used in this course to course-sharing or other websites (such as CourseHero). Recording material from this course, including lectures, discussions or other activities is forbidden. Sharing recorded material or posting it online is also forbidden. <https://copyright.illinois.edu>

Any violation of these policies will be forwarded to the Office of Student Conflict Resolution for disciplinary action as outlined in the Student Code, Rules of Conduct: <https://studentcode.illinois.edu/article1/part3/1-302/>