



School of Molecular & Cellular Biology

MCB 297B, Spring 2024

MCB Honors Discussion Section B, 1 Credit Hour

Instructor

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Class Meeting Schedule

Section B: F 11:00-11:50

Student Hours: Friday by appointment or Tuesday 11:00 AM - Noon

Course Overview and Description

Honors discussion section associated with MCB 250, MCB 252, and MCB 354.

Concurrent enrollment in the appropriate lecture course is required. May be repeated in separate terms to a maximum of 3 hours. 1 credit.

In Section B, learners will learn how to approach primary literature, including a general strategy to reading a paper, and present the major methods and results to the class. Papers for presentations are picked by the instructor. Currently, this emphasizes SAR-CoV-2 infection and COVID-19.

Course Prerequisites, Requirements met

Prerequisite: concurrent enrollment in MCB 252

Student Learning Outcomes

At the end of the course, through assignments, discussions, activities and assessments, students will be able to:

1. Summarize major results of a primary literature article in written and presentation form
2. Find and present relevant background information for a topic of interest
3. Assess the quality, assumptions, and limitations of a primary literature article

Text/Materials Information (both required and recommended)

No required texts

Course Website, Course Tools (Compass, Moodle, LON-CAPA, Zoom, etc)

Learn.illinois.edu; login via University of Illinois NetID and Password

Grading Information and Breakdown

- Discussion questions (60 points total): 6 points per assignment for submitting reasonable and complete answers to instructor-written questions prior to class, including for your assigned presentation. Only assessed if granted an excused absence or present for relevant presentation; 2 drops.
- Presentation (80 points total): Learners can earn up to 80 points through giving a presentation regarding an assigned paper.
- Final Paper (50 points total): Learners must complete a term paper analyzing a primary literature article of their choice in relation to a Cell Biology topic, approved by the instructor.
- Attentive Audience Score (10 points total): Learners can earn up to 10 points for being attentive and present during their peers' and the instructor's presentations. No headphones in except as accommodations via DRES, minimal extra typing/writing, and discussing within peer group questions posed by presenters or the instructor. 1 point penalty for each disrespectful interruption or behavior.

Point Total: 200 Points

Tentative Grading Scale for SP24 MCB 297B

Letter Grade	Point Cutoffs	Letter Grade	Minimum Point Cutoff
A+	200-185	C	143-136
A	184-177	C-	135-130
A-	176-170	D+	129-124
B+	169-164	D	123-116
B	163-156	D-	115-110
B-	155-150	F	109 or less
C+	149-144	-----	-----

Tentative SP24 Course Calendar with Daily Schedule of Topics, Readings and Assignment Due Dates

Week of	Readings and Important Due Dates
January 19 Week 1	Introduction to Class and Syllabus; assign groups. Assign: Student Presentations, presenter questions due one week before presentation date, Discussion Questions for Instructor Presentation.
January 26 Week 2	<i>Instructor Presentation- Looking at a Paper Chan (2020); creating the presentation walk-through.</i> Due before Week 2 class: Discussion Questions
February 2 Week 3	<i>Instructor Example:</i> Letko, M., Marzi, A., & Munster, V. (2020). Functional assessment of cell entry and receptor usage for SARS-CoV-2 and other lineage B betacoronaviruses. <i>Nature Microbiology</i> , 5(4), 562-569. https://doi.org/10.1038/s41564-020-0688-y Due before Week 3 class: Discussion Questions
February 9 Week 4	<i>No In-Person Class; watch recording describing final paper (found at on the course website, learn.illinois.edu) and work on Student Presentation</i>
February 16 Week 5	Student Presentation 1: Hoffmann, M., Kleine-Weber, H., Schroeder, S., Krüger, N., Herrler, T., Erichsen, S., ... Pöhlmann, S. (2020). SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor. <i>Cell</i> , 181(2), 271-280.e8. https://doi.org/10.1016/j.cell.2020.02.052 Due before Week 5 Class: Discussion Questions for Presentation 1
February 23 Week 6	Student Presentation 2: Hackbart, M., Deng, X., & Baker, S. C. (2020). Coronavirus endoribonuclease targets viral polyuridine sequences to evade activating host sensors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 117(14), 8094-8103. https://doi.org/10.1073/pnas.1921485117 Due before Week 6 Class: Discussion Questions for Presentation 2
March 1 Week 7	Student Presentation 3: Volk, A., Hackbart, M., Deng, X., Cruz-Pulido, Y., O'Brien, A., & Baker, S. C. (2020). Coronavirus Endoribonuclease and Deubiquitinating Interferon Antagonists Differentially Modulate the Host Response during Replication in Macrophages. <i>Journal of Virology</i> , 94(11). https://doi.org/10.1128/jvi.00178-20 Due before Week 7 Class: Discussion Questions for Presentation 3
March 8 Week 8	No In-Person Class: Work on your Final Paper

March 15 Week 9	No Class: Spring Break
March 22 Week 10	<p>Student Presentation 4: Yang, L., et al. (2020). A Human Pluripotent Stem Cell-based Platform to Study SARS-CoV-2 Tropism and Model Virus Infection in Human Cells and Organoids. In <i>Cell Stem Cell</i> (Vol. 27, Issue 1, pp. 125-136.e7). https://doi.org/10.1016/j.stem.2020.06.015</p> <p>Due before Week 10 Class: Discussion Questions for Presentation 4</p>
March 29 Week 11	<p>Student Presentation 5: Abbott, T. R., Dhamdhare, G., Liu, Y., Lin, X., Goudy, L., Zeng, L., ... Qi, L. S. (2020). Development of CRISPR as an Antiviral Strategy to Combat SARS-CoV-2 and Influenza. <i>Cell</i>, 181(4), 865-876.e12. https://doi.org/10.1016/j.cell.2020.04.020</p> <p>Due before Week 11 Class: Discussion Questions for Presentation 5</p>
April 5 Week 12	<p>Student Presentation 6: Fernández-Castañeda, A., et al. (2022). Mild respiratory COVID can cause multi-lineage neural cell and myelin dysregulation. <i>Cell</i>, 2452-2468. https://doi.org/10.1016/j.cell.2022.06.008</p> <p>Due before Week 12 Class: Discussion Questions for Presentation 6</p>
April 12 Week 13	<p>Student Presentation 7: Yang, J., Xiao, Y., Lidsky, P. V., Wu, C. T., Bonser, L. R., Peng, S., Garcia-Knight, M. A., Tassetto, M., Chung, C. I., Li, X., Nakayama, T., Lee, I. T., Nayak, J. V., Ghias, K., Hargett, K. L., Shoichet, B. K., Erle, D. J., Jackson, P. K., Andino, R., & Shu, X. (2023). Fluorogenic reporter enables identification of compounds that inhibit SARS-CoV-2. <i>Nature Microbiology</i>, 8(1), 121-134. https://doi.org/10.1038/s41564-022-01288-5</p> <p>Due before Week 13 Class: Discussion Questions for Presentation 7</p>
April 19 Week 14	<p>Student Presentation 8: Siong Low, J., Jerak, J., Alejandra Tortorici, M., McCallum, M., Pinto, D., Cassotta, A., Foglierini, M., Mele, F., Abdelnabi, R., Weynand, B., Noack, J., Montiel-Ruiz, M., Bianchi, S., Benigni, F., Sprugasci, N., Joshi, A., Bowen, J. E., Stewart, C., Rexhepaj, M., ... Sallusto, F. (n.d.). <i>ACE2-binding exposes the SARS-CoV-2 fusion peptide to broadly neutralizing coronavirus antibodies</i>. https://www.science.org</p> <p>Due before Week 14 Class: Discussion Questions for Presentation 8</p>
April 26 Week 15	No Class; work on your final paper
Week 16	Turn in Final Paper <u>BEFORE</u> May 2nd.

Note Regarding Letters of Recommendation from the Instructor:

At some point in the future, you might need to ask for a letter of recommendation from me, the instructor. If you want a strong, unique, and positive letter of recommendation for having been in this class, showing up and submitting the assignments on time is not sufficient for me to write a strong and unique letter of recommendation for and about you. Authentic, thoughtful participation in class, in which you speak and discuss both with your tables and with the class at large, is almost certainly a requirement for a strong and unique positive letter of recommendation. One-on-one conversations with me about relevant topics (academic life, graduate school, nature of science, how I approach the class or science in general, etc.) are also good ways for me to understand you well enough to write a strong and unique positive letter of recommendation. It's rare that I turn down a request for a positive letter for students who do well in my courses, but, if you want more than a copy-pasted letter, you need to give me something to write about.

If you are active in the MCB community outside of this class, there are other opportunities which might be able to speak to your abilities, often much better than this class affords. If graduate, medical, or professional school are among your goals, I'd highly recommend getting at least two letters from faculty or staff who see you in these outside-of-class settings. While how you perform in class is important and it's naïve to say the grade you earn doesn't matter, it really is only a fraction of what makes somebody stand out.

Finally, I'm always happy to be a resource regarding academic and science life, so feel free to come chat during my Student Hours for things NOT related to MCB 297B, too.

Generative AI Statement:

I can't stop you from using it if I wanted to, and I don't particularly want you to stop you, anyway. However, I think you should tread carefully in your use of it because, anything that you can only do as well as a generative AI, your future employers, interviewers, shareholders, etc. have that same capability as well as many of your peers. I think you do yourself and your future a disservice by contracting out your education to ChatGPT or whatever tool you like.

Remember you are also solely responsible for the accuracy of the work you submit, including that generated in any capacity by generative AI. While such tools seem astonishingly capable of qualitative description of techniques and factual information, as of January 2024, they also appear to be equally astonishingly incapable of analyzing graphical data or merging factual information with data collected. While this could change, it hasn't yet, to my knowledge.

Additionally, I think using generative AI as a search tool is a somewhat regressive use of technology. Search engines have been available for decades now and offer the distinct advantage of allowing you to choose the source of information; I'd much rather get a protocol for an unfamiliar technique or reagent recipe from Cold Spring Harbor Laboratory than from a random blog article. ChatGPT also doesn't give animations, graphics, or demonstrations (like perhaps YouTube will), a useful feature that might effectively help with understanding a topic instead of finding yet another page of text.

Generative AI is undoubtedly useful, and I think it is important that you learn to use it effectively. There's an adage that goes something like "every problem becomes a nail when all you have is a hammer;" there are several applications of this insight, but one interpretation is that if you limit yourself to just one tool, you've limited the types of problems you can effectively and efficiently solve. *We can do better than that, and I think you will have to do better than that outside of your education.*

MCB Curriculum Policies

For non-academic campus assistance and support:

- See Office of Diversity, Equity and Access (ODEA) information at the end of this document.

Student Advocacy Resources:

- For student-centered advocacy programs and services visit: mcb.illinois.edu/undergrad/advising/resources.

Policies:

- Unfamiliarity with policies is not a defense for not knowing what they cover.

Adding the Course after the Semester Starts:

- We understand that the University has an add deadline 10 days into the semester, but the University lets individual courses and/or programs determine their policies for late adds. We feel that students who choose to add a course late do so at their own discretion with knowledge that there may be points lost in the process.

Religious Observances and Practices:

- Students are required to submit the Request for Accommodation for Religious Observances Form (which can be found at www.odos.illinois.edu/.../Religious_Observance_Accommodation_Request_Form.docx) to their instructors and the Office of the Dean of Students requesting accommodation by the end of the second week of the course. Requests that are not submitted within this time frame may not be granted. Information about accommodations can be found in the Student Code: <http://studentcode.illinois.edu/>.

Disability Resources and Educational Services (DRES) Accommodations:

- We are committed to providing a learning environment where our students can succeed. If you require special accommodations, please contact us and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak Street, Champaign, call 217.333.4603, or email disability@illinois.edu. We will try to meet all accommodations once the process has started. Please note that accommodations are not retroactive to the beginning of the semester, but begin the day you contact your professor, instructor or coordinator with a current letter of accommodation from DRES.
- If a student believes that they need DRES accommodations, they should contact DRES at disability@illinois.edu.

Class Absences:

- Regular class attendance is expected of all students at the University. (http://odos.illinois.edu/studentAssistance/absence/revised_code.asp)
- If you find yourself ill, you must submit confirmation of a visit with a medical practitioner within 24 hours of your absence. The confirmation cannot be provided by a relative, even if the relative is a practitioner.
- The Office of the Dean of Students will only provide informative letters to instructors for protracted illness of 3 or more days, certain emergencies and to be present during the serious illness of immediate family members (parents, legal guardian, spouse/partner, siblings, children, or grandparents). These letters do not excuse you from class but merely provide information for the instructor to consider with regard to excusing the absence and permitting make-up work. Students must request absence letters from the Office of the Dean of Students after the student has returned to class but not more than 10 business days after the last date of absence.
- Absences that may be excused without a letter include circumstances beyond the student's control such as medical treatment, surgery related to prolonged illness or injury, pregnancy, legal matters, citizenship or naturalization processes, or acts of nature which cause destruction to a primary residence or disrupt air travel. All will require documentation.
- Absences that may also be excused without a letter include a conference or job, graduate or professional school interviews, though a best effort should be made to schedule these events to minimize class attendance disruption. All will require documentation.
- Absences planned for the items listed in previous bullet point must be communicated to your instructor or course coordinator at least two weeks in advance of the absence. Failure to do so may result in the loss of opportunity to reschedule the missed class period and the portion of the grade associated with this class period.
- Absences that will not be excused include family events such as reunions or weddings, or presence during serious illness of extended family members (aunt, uncle, niece, nephew, or cousin).
- Unplanned absences may result in the loss of opportunity to reschedule the missed class period and, therefore, the portion of the grade associated with this class period.
- Absences will be handled according to individual course policy.

Grades:

- Each course has a grade scale. The grade you earn in the course will be based on the points that you earn. Effort is reflected in points earned. We will adhere to the grade scale when assigning grades in order to avoid capriciousness and to adhere to fairness and equity for all students.

Academic Integrity:

- The Code of Policies and Regulations Applying to All Students will be applied in all instances of academic misconduct committed by students. This applies to all exams, presentations, assignments and materials distributed or used in this course. You can review these policies at the following website: <http://admin.illinois.edu/policy/code/index.html> and specifically here: <http://studentcode.illinois.edu/article1/part4/1-401/>
- Science cannot exist without honesty. The faculty and staff in MCB require students, as scientists-in-the-making, to hold the highest standards of scientific and academic conduct. Any form of cheating on any graded work in courses is unacceptable.

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- We require that all graded work be entirely your own, and that anything you write using the words of other writers be correctly attributed. Some specific points follow.
 - On exams, the answers that you turn in for grading must be your own, formulated during the exam from your own understanding of the material and without any supporting information, be it written, verbal or electronic. Copying the work of another student, or allowing another to copy your work, or copying work from any other source, is unacceptable. Since we cannot always monitor you as you complete your work, we must rely upon appearance of your work from which to judge. If the work you submit resembles that of another student or another source too closely, we may conclude that it was not your original work. Always make a conscious effort to complete your work on your own and to protect it from the view of others, in order to ensure that it will be seen as your own. Failure to adhere to these standards for any portion of an exam may result in a grade of zero for the entire exam or quiz for all persons involved.
 - Texting, or the use of a cell phone or any other device for any purpose, during a quiz or exam is prohibited. Doing so may earn you a zero or a more extreme penalty on the quiz or exam at the discretion of the instructor.
 - Use of any social or electronic media to share information, request information or make confidential information public is prohibited. Any use of this type may earn you a zero on the exam or a more extreme penalty at the discretion of the instructor.
 - On written or electronic assignments, the answers that you turn in for grading must be written in your own words, formulated from your own understanding of the material. While you may be working with other students in the course, you must formulate and submit your own answers. Copying or paraphrasing the work of another student, or allowing another to copy or paraphrase your work, is unacceptable. Since we cannot monitor you as you complete your work, we have only the appearance of your work from which to judge. If the work you submit resembles that of another student too closely, we may conclude that it was not your original work. Always make a conscious effort to complete your work on your own and to protect it from the view of others, in order to ensure that it will be seen as your own. You must also make a conscious effort to protect your passwords and accounts. Failure to adhere to these standards may result in a grade of zero for the entire assignment for all persons involved.
 - On written or electronic assignments, if you use a statement taken directly from any book or other publication, including the course textbook, you must provide a citation. That is, you must put the text in quotes and put the author of the publication in parentheses after the quotation. Failure to do so will result in zero credit for that answer. Further, using only the words of another author as your entire answer or as the majority of your answer to any question is never sufficient to earn credit. If the majority of your work has been taken directly from a publication, you are likely to receive no credit for the work, since you would not be demonstrating knowledge beyond the ability to copy. Even if you quote another, your answer must be substantially your own words, drawn from your own understanding of the material.

Electronic Media/Device Use:

- Use of any social or electronic media to share course information, request course information or make confidential course information public is prohibited. Any use of this type may earn you a zero on an assignment or exam or a more extreme penalty at the discretion of the instructor.
- Any violation of the social media policy **on your account** may result in a zero on an assignment or exam or a more extreme penalty at the discretion of the instructor.

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- Any social media sites created in relation to MCB courses must grant access to course personnel upon request. Failure to provide access will result in a failing grade in the course for the group/site's administrator(s).
 - No electronic devices, including smart watches, are allowed at exams.

Course Material:

- Students are welcome and encouraged to make audio recordings of course lectures.
- The material recorded is intellectual and copyrighted property of the University of Illinois Board of Trustees and may be made for personal use only.
- Video recordings of any kind are strictly prohibited.
- Posting of audio recordings or transcriptions on social or electronic media platforms is strictly prohibited.
- Posting or redistributing of course material in any format is strictly prohibited.

University Information of Student Safety - Active Threats:

- **General Emergency Response Recommendations** ([Emergency Response Guide](#)):
- Security Threat. The Department of Homeland Security and the University of Illinois at Urbana-Champaign Office of Campus Emergency Planning recommend the following three responses to any emergency on campus: **RUN > HIDE > FIGHT**
- **Only follow these actions if safe to do so.** When in doubt, follow your instincts - you are your best advocate!
- **RUN** – Action taken to leave an area for personal safety.
 - Take the time to learn the different ways to leave your building **before** there is an emergency.
 - Evacuations are mandatory for fire alarms and when directed by authorities! No exceptions!
 - Evacuate immediately. Pull manual fire alarm to prompt a response for others to evacuate.
 - Take critical personal items only (keys, purse, and outerwear) and close doors behind you.
 - Assist those who need help, but carefully consider whether you may put yourself at risk.
 - Look for **Exit** signs indicating potential egress/escape routes.
 - If you are not able to evacuate, go to an Area of Rescue Assistance, as indicated on the front page of this plan.
 - Evacuate to Evacuation Assembly Area, as indicated on front page of this plan.
 - Remain at Evacuation Assembly Area until additional instructions are given.
 - Alert authorities to those who may need assistance.
 - Do not re-enter building until informed by emergency response personnel that it is safe to return.
 - Active Threat: IF it is safe to do so, run out of the building. Get as far away as possible. Do NOT go to the Evacuation Assembly Area.
- **HIDE** – Action taken to seek immediate shelter indoors when emergency conditions do not warrant or allow evacuation.
 - Severe Weather:
 - If you are outside, proceed to the nearest protective building.
 - If sheltering-in-place due to severe weather, proceed to the identified Storm Refuge Area or to the lowest, most interior area of the building away from windows or hazardous equipment or materials.

- Active Threat:
 - Lock or barricade your area.
 - Get to a place where the threat cannot see you.
 - Place cell phones on silent.
 - Do not make any noise.
 - Do not come out until you receive an Illini-Alert advising you it is safe.
- **FIGHT** – Action taken as a last resort to increase your odds of survival.
 - Active Threat: If you cannot run away safely or hide, be prepared to fight with anything available to increase your odds for survival.

Student Resources/Where to go for Help:

We Care at Illinois

- For sexual misconduct support, response and prevention visit: wecare.illinois.edu

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://oior.illinois.edu/sites/prod/files/SexualMisconduct_ResourceGuide.pdf

Safety and Emergency

University Police Department, Emergency, 9-911; Non-emergency, 217-333-8911

University Fire Department Emergency, 9-911

Crisis Line, 217-359-4141

Emergency Dean, 300 Turner Student Services Bldg., 610 E. John St., 217-333-0050

Counseling Center, 110 Student Services Bldg., 610 E. John St., 217-333-3704

McKinley Health Center, General Information, 217-333-2701

McKinley Mental Health Center, 1109 S. Lincoln, 217-333-2705

Dean of Students, 300 Turner Students Services Bldg, 610 E. John St., 217-333-0050

Local Sexual Assault Center, RACES, 217-384-4444

Women's Resources Center, 703 South Wright Street, 2nd Floor, 217-333-3137

Rape Crisis 24-hour Hotline, 217-384-4444

Suicide & Psychological Emergency, Suicide Prevention Team, 217-333-3704

SafeRides (free nighttime campus ride program), 217-265-RIDE (265-7433)

SafeWalks (free walking escort service by Student Patrol), 217-333-1216

Student Services and Advocacy

Office of the Dean of Students, 300 Student Services Bldg., 610 E. John St., 217-333-0050

Classroom Support, Teaching Skills, and Instructional Strategies

Center for Innovation in Teaching & Learning, 249 Armory Building, 217-333-1462

Counseling Services

Counseling Center, 110 Student Services Bldg., 610 E. John St., 217-333-3704

McKinley Mental Health Center, 1109 S. Lincoln Ave., 217-333-2701

Psychological Services Center, 3rd Floor, 505 E. Green St., 217-333-0041

Disability Services

Disability Resources and Educational Services (DRES), 1207 S. Oak St., 217-333-1970

Lesbian, Gay, Bisexual, Transgender Resource Center

LGBTB Resource Center, 323 Illini Union, 1401 W. Green St., 217-244-8863

Veterans Services

Veteran Student Support Services, Office of the Dean of Students, 610 E. John St., 217-333-0050

Center for Wounded Veterans in Higher Education, 908 W. Nevada St., 217-300-3515

General Study Skills Assistance

Office of Minority Student Affairs, 130 Student Services Bldg., 610 E. John St, 217-333-0054

Office of Minority Student Affairs Tutoring Services, 701 S. Gregory Dr., Suite 1, 217-333-7547

Writer's Workshop, 251 Undergraduate Library, 1402 W. Gregory Dr., 217-333-8796

**Additional academic assistance may be available through individual departments

Health Resources

Health Education, McKinley Health Center, 1109 S. Lincoln Ave., 217-333-2701

Alcohol & Other Drug Office, 2nd Floor Counseling Center, 610 E. John St., 217-333-7557

Sexual Health Educator, McKinley Health Center, 1109 S. Lincoln Ave., 217-333-2714

Dial-A-Nurse, McKinley Health Center (24-hour), 1109 S. Lincoln Ave., 217-333-2700

Health Resource Center, McKinley Health Center, 1109 S. Lincoln Ave., 217-333-6000

Health Resource Center, Room 40 Illini Union, 1401 W. Green St., 217-244-5994

McKinley Health Center, General Information, 1109 S. Lincoln Ave., 217-333-2701

Sexual Harassment/Assault & Acts of Intolerance/Hate Crimes

Office of the Dean of Students, 300 Students Services Bldg., 610 E. John St., 217-333-0050

The Office of Diversity, Equity and Access (ODEA):

- For non-academic support visit: diversity.illinois.edu
 - Discrimination & Harassment Prevention
 - Title IX
 - Accessibility & Accommodations
 - Inclusive Illinois