

# School of Molecular & Cellular Biology

# MCB 420, Spring 2025

Phage Discovery, 3 Credit Hours

#### <u>Instructor</u>

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Chemical and Life Science Lab B213

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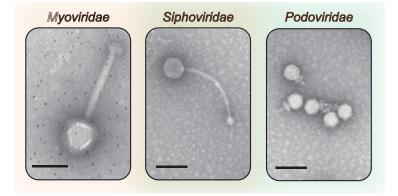
Phone: 217-333-1736

#### **Class Meeting Schedule**

Lecture: T, 2:00-2:50 PM Lab hours: T, 3:00-3:50 PM

W, R, 2:00-3:50 PM

Location: Noyes 216
Office Hours: By appointment



## **Course Overview and Description**

Research-based lab course that isolates new bacterial viruses (phages) and characterizes their phenotypic and genotypic features, with an overarching class goal to build a collection of diverse phages that are suitable for therapeutic and other applications. Includes lectures and discussions on current scientific literature and experiments using modern microbiology, microscopy, molecular, and genomics techniques. The course exposes students to the full spectrum of activities entailed in conducting authentic scientific research.

#### **Course Prerequisites**

MCB 251 or MCB 253, or equivalent, or permission from instructor

#### **Student Learning Outcomes**

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

- Describe in detail the life cycles, phenotypic, and genotypic properties of bacterial viruses (phages) and phage-derived applications for therapeutic, industrial, and research purposes.
- Describe in detail the diverse immune systems in bacteria that defend against phages.
- Perform modern microbiology, molecular, genomic, and microscopic techniques commonly employed in phage research.
- Critically analyze data derived from experiments performed in the lab and in peer-reviewed scientific literature.
- Report on research conducted in the lab and current research from the literature in both written and oral formats.

\*Students can expect to spend an average of nine hours per week in/outside of class, with some weeks requiring more/less time depending upon the nature of assignments due each week.

#### Course Text/Materials Information

Compilation of tailored protocols, review articles, and primary research articles

#### **Course Tools**

Course materials will be made available through Canvas at https://canvas.illinois.edu.

#### <u>Grading Information and Breakdown</u>

The following assessments are designed to test and ensure consistent progress on all five learning goals above. There are 450 possible points in the course. The breakdown is as follows:

- 1. **Quizzes** (175 points). Seven quizzes will be administered throughout the semester that focus on research topics and experimental concepts learned during the prior two to three weeks. Each quiz is worth 25 points.
- 2. **Lab reports** (100 points). Two lab reports written in the format of a primary research article will be assigned. Each lab report is worth 50 points.
- 3. **Lab Notebooks** (100 points). You are expected to maintain a detailed lab notebook of your daily activities throughout the semester. Lab notebooks will be collected and graded along with lab reports (twice during the semester.) Each collection will be worth 50 points.
- 4. **Final Presentation** (50 points). Each lab group will deliver an in-class presentation of data collected and lessons learned throughout the semester during the final exam period.
- 5. **Attendance** (25 points). Students are expected to attend all lab sessions having prepared by reading through the protocols ahead of time.

## Grading scale:

A+	97-100	B+	87-89	C+	77-79	D+	67-69	
Α	93-96	В	83-86	C	73-76	D	63-66	F < 60
A-	90-92	B-	80-82	C-	70-72	D-	60-62	

#### **Attendance Policy**

Students are expected to attend all sessions and are responsible for material even when absent.

<u>Lab sessions</u>: It is very important to be present at every session, or you will miss important information and your experiments will fall behind. If you have a valid reason for missing lab, you are expected to arrange for your lab partner to continue experiments in your absence.

<u>Quizzes</u>: If for a valid reason you cannot attend a scheduled quiz, you must contact me a week in advance. If you are sick or it is an emergency, you must provide written documentation from a medical practitioner within 24 hours of the absence. Failure to provide a valid reason for the absence can result in as little as a full letter grade off, or as much as a zero grade on the quiz. Please note that traveling early for a vacation is NOT a valid excuse for missing a quiz.

#### Policy on Late Work/Missed Quizzes

Students with a valid excuse (see "Class Absences" on p.7) will be able to turn in late work or make up quizzes without penalty. Failure to provide a valid reason for turning in late work or missing quizzes can result in as little as full letter grade off or a zero on the assignment/quiz.

#### **Elasticity Statement**

The instructor will make every effort to follow the course calendar (outlined on next page) and the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as needed. In such instances, the instructor will notify students in class and/or via email and will endeavor to provide reasonable time for students to adjust to any changes.

# Course Calendar

Week of	Discussions & Activities	Assigned Readings (come prepared to discuss)	Dates of quizzes & other assessments
Jan. 20 (Week 1)	Lecture/Discussion: -Introduction to the scientific method -Introduction to phages -Lab Safety training	1. SOP for wastewater 2. SOP for BSL-1 3. Keen, 2015 (Bioessay on phages) *Lab safety trainings and acknowledgement forms (Due Jan 23)	
Jan. 27 (Week 2)	Lecture/Discussion: -Phage life cycles and practical applications  Activities: -Media prep -Sample collection -Enriching for phages in liquid culture -Plate pouring	4. Salmond and Fineran, 2015 (Review on phages & applications)	
Feb. 3 (Week 3)	Lecture/Discussion: -Phage-host receptor interactions  Activities: -Phage enrichment (cont'd) -Phage detection using double-agar overlay assays.	5. Dunne et al, 2018 (Review, phage-host interactions, gram positives) 6. Chaturongakul and Ounjai, 2014 (Review, phage-host interactions, gram negatives)	Quiz 1 on 2/4 (Tuesday) Includes readings 1-4
Feb. 10 (Week 4)	Lecture/Discussion: -Phages of gram negatives  Activities: -Phage plaque purification -Media prep (as needed)	7. Casjens and Hendrix, 2015 (Review on phage Lambda) 8. Kaczorowska <i>et al</i> , 2019 (Primary research article— <i>E</i> . <i>coli</i> phage therapy)	
Feb. 17 (Week 5)	Lecture/Discussion: -Phages of gram positives  Activities: -Phage purification (cont'd) -Media prep (as needed)	9. Hatoum-Aslan, 2021 (Review on staphylococcal phages) 10. Melo <i>et al</i> , 2018 (Primary research article— staph phage therapy)	Quiz 2 on 2/18 (Tuesday) Includes readings 5-8

Feb. 24 (Week 6)	Lecture/Discussion: -Bacterial anti-phage immunity  Activities: -Preparing high-titer lysates -Phage titering -Media prep (as needed)	11. Hampton <i>et al</i> , 2019 (Review on bacterial defense mechanisms) 12. Doron <i>et al</i> , 2018 (Primary article on new defenses)	
Mar. 3 (Week 7)	Lecture/Discussion: -Bacterial anti-phage immunity (cont'd)  Activities: -Phage titering -lysate clean-up for electron microscopy (EM) -Media prep (as needed)	13. Kronheim <i>et al</i> , 2018 (Primary article on chemical defense)	Quiz 3 on 3/5 (Wednesday) Includes readings 9-12
Mar. 10 (Week 8)	Lecture/Discussion: -Phage morphology and techniques for imaging.  Activities: -Preparing EM grids -Visualizing phages using TEM (meet at the MRL for individual appointments)	14. Ackermann, 2012 (Chapter on phage EM)	Due by Mar 14 (Friday): *Lab notebooks *Lab report 1
Mar. 17	No class, Spring Break		
Mar. 24 (Week 9)	Lecture/Discussion: -Transduction of phage- inducible chromosomal islands  Activities: -Determining host range -Preparing high titer lysate	15. Fillol-Salom et al, 2020 (Review on phage-inducible chromosomal islands) 16. Abedon, 2011 (Review article on Lysis from without)	Quiz 4 on 3/25 (Tuesday) Includes readings 13-14
Mar. 31 (Week 10)	Lecture/Discussion: -Transduction of antibiotic resistance genes  Activities: -Determining host range -Extracting phage genomes	17. Keen <i>et al</i> , 2017 (Primary Research Article on superspreader phages)	

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Apr. 7	Lecture/Discussion:	18. Penziner <i>et al</i> , 2021	Quiz 5 on 4/8
(Week 11)	-Animal models in phage	(Review article on phage	(Tuesday)
	therapy	therapy animal models)	Includes
		19. Uchiyama <i>et al</i> , 2013	reading 15-17
	Activities:	(Primary research article on	
	-Phage genome typing	silkworm and mouse models	
		for staph phage therapy)	
Apr. 14	Lecture/Discussion:	20. Gutierrez <i>et al</i> , 2018	
(Week 12)	-Alternative uses of phages—	(Review article on phage	
(***ceik 12)	lysins as therapeutics	lysins as therapeutics)	
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	Activities:		
	-Phage Genome Restriction		
	Mapping		
Apr. 21	Lecture/Discussion:	21. Klumpp et al, 2012	Quiz 6 on 4/22
(Week 13)	-Bacteriophage genomics—	(Primary article on next gen	(Tuesday)
( ,	phage genome sequencing	sequencing of diverse	Includes
		phages)	readings 18-20
	Activities:		_
	-Phage genome sequence		
	analysis—Illumina vs		
	Nanopore		
	•		
Apr. 28	Lecture/Discussion:	22. Ramsey <i>et al</i> , 2020	
(Week 14)	-Bacteriophage genomics—	(Primary article on the	
,	Phage genome structural	Galaxy platform for phage	
	annotation	sequencing and annotation)	
	Activities:		
	-Phage genome annotation		
A4	Locturo /Discussions		Ouiz 7 an 5 //
May 5	Lecture/Discussion:		Quiz 7 on 5/6
(Week 15)	-bacteriophage genomics—		(Tuesday)
	Phage genome functional		Includes
	annotation		readings 21-22
	Activities:		
	-Phage genome annotation		
	(cont'd)		
	-Final lab cleanup		
	-Exit survey		
	-LAIL Survey		
May x at	-Final presentations		Due on day of
x-y A/PM	,		final:
(final			*Lab notebooks
,			*Lab report 2
exam			
period)			

# General MCB Curriculum Policies

#### **Policies:**

Regardless of whether a student has read the Course Policies for MCB 420, a student is
expected to have knowledge of them. These policies were developed in agreement
with the 2024-2025 Illinois Student Code.

#### 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**

- 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 must request a reasonable accommodation for their religious belief, observance, and practice in advance of the conflict to allow time for both consideration of the request and alternate procedures to be prepared. Not requesting an accommodation reasonably in advance of the conflict may result in a delay or denial of the accommodation.
- A reasonable accommodation for a religious belief, observance, and practice is defined
  as a change that allows the student to participate in their religious belief, observance,
  and practice and which does not fundamentally alter the educational requirement or
  place an undue hardship on an instructor, department, or office.
- Students must direct a request for a reasonable accommodation for a religious belief, observance, and practice to the instructor(s) of the affected course(s), who shall review the request and determine whether a reasonable accommodation can be made. This form serves as a resource to assist students as they are making such requests to their instructors. PLEASE NOTE: This form asks you to clarify whether you are requesting an absence or an accommodation other than absence.
- Once submitted, students will receive a copy of this request form. Students must then forward the form to each instructor in order to request the accommodations.
- Request to Instructor Religious Accommodation form:
   https://cm.maxient.com/reportingform.php?UnivofIllinois&layout\_id=42)

#### 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 DRES as soon as possible. To contact DRES, you may visit 1207 S. Oak Street, Champaign, call 217-333-4603, or email <u>disability@illinois.edu</u>. 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 has DRES accommodations, documentation must be submitted to course personnel by the end of the second week of class.
- 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.

#### Quiz and Final Exam Session Absences:

• If you must miss a quiz or the final exam session due to unforeseen circumstances, you are required to contact your instructor or course coordinator within 24 hours of the absence. You will then have 48 hours from the absence in which to submit documentation to your instructor or course coordinator. You must also submit an online Absence Form if one is available on your course website. Course personnel will evaluate documentation and decide whether or not there will be an option to compensate for the missed session through either a make-up quiz/talk session or proration. Failure to follow this procedure will result in a zero for the assessment.

- 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.
- If you must miss a quiz or the final exam session for a conference or job, graduate or professional school interviews, the quiz/final talk may be prorated. A best effort should be made to schedule these events around class sessions. You will need to be mindful that only one quiz may be prorated in a semester for any and all absences. All will require documentation.
- There will be instances when the student must make an individual choice about their ability to perform on a quiz and will need to accept any and all consequences for that choice.
- If the absence is a result of a protracted illness of 3 days or more, you should follow the procedure for obtaining a letter from the Office of the Dean of Students. The request may be made once the student returns to class but not more than 10 business days after the last date of absence.

#### Quiz or Final Exam Session Conflicts:

- If you have a regularly scheduled University course that conflicts with the session, you should complete the online Conflict Exam Request Form on the course website. This request must be made by 5:00 pm not less than 3 business days prior to the quiz. Requests made after 5:00 pm and less than 3 business days prior to the quiz will not be granted. See course policies for a specific deadline for your course.
- Work schedules should be adjusted, if at all possible, in order to eliminate a conflict with scheduled quizzes and the final exam session. Please plan accordingly at the beginning of the semester. If eliminating a conflict is not possible, the student should complete the online Conflict Exam Request Form on the course website. This request must be made by 5:00 pm not less than 3 business days prior to the anticipated missed session. Requests made after 5:00 pm and less than 3 business days prior to the anticipated missed session will not be granted.
- Students that are formally participating in officially recognized groups, such as athletic teams and performing groups, with a conflict should request a conflict exam/quiz by 5:00 pm not less than 3 days prior to the session via the online Conflict Request Form. Formal participation does not include general meetings of RSOs or any other recognized groups. Documentation of the event will be required prior to scheduling the conflict exam/quiz. Requests made after 5:00 pm and less than 3 business days prior to the anticipated missed session will not be granted.
- Students with DRES accommodations should also submit the online Conflict Request Form by 5:00 pm no later than 3 business days prior to the quiz/final session. Requests made after 5:00 pm and less than 3 business days prior will not be granted.

#### **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: <a href="http://admin.illinois.edu/policy/code/index.html">http://admin.illinois.edu/policy/code/index.html</a> and specifically here: <a href="http://studentcode.illinois.edu/article1/part4/1-401/">http://studentcode.illinois.edu/article1/part4/1-401/</a>

- 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.
- 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 your 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.
- 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 (<u>Emergency Response Guide</u>):
- 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.
  - o 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.
  - o Remain at Evacuation Assembly Area until additional instructions are given.
  - o 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.
  - o 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: <a href="http://oiir.illinois.edu/sites/prod/files/SexualMisconduct\_ResourceGuide.pdf">http://oiir.illinois.edu/sites/prod/files/SexualMisconduct\_ResourceGuide.pdf</a>

#### 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, 3<sup>rd</sup> 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

LGTB 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, 2<sup>nd</sup> 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
  - o Discrimination & Harassment Prevention
  - Title IX
  - Accessibility & Accommodations
  - Inclusive Illinois

# "Lab Meeting" Presentation

Members of a research lab usually meet once a week to share and discuss data and the most recent findings in the field. Weekly lab meetings also provide a venue to discuss problems encountered while performing experiments and brainstorm about solutions and/or future directions. While we have all been performing the same experiments and striving for the same goals, many of us have had very different experiences throughout the semester and obtained different results. Our final lab meeting will provide an opportunity for everyone to present their results and share their unique experiences with the rest of the class. You will also have an opportunity to briefly summarize a primary research article (of your choosing) related to phage.

#### **Presentation Format:**

- -Lab partners will be given 12 minutes to present their data and paper in the form of a powerpoint presentation—this will take place on **May 8<sup>th</sup> at 7:00 10:00 PM in Noyes 216.**
- \*\*Note that I will be timing the presentations to make sure we do not fall behind
- -Start the presentation with an Introductory slide on your research:
  - background information
  - missing "gap" in knowledge and why it is important to fill the gap
  - > the main research question we are addressing
- -Prepare a slide for each piece of data that was obtained.
- -Data figures important to include:
  - 1. Picture of homogenous plaques/titer plate
  - 2. TEM of phage
  - 3. Host range table
  - 4. Gels depicting genome type and restriction mapping
  - 5. Genome map with annotations
- -While presenting each data figure, discuss your interpretations and results
  - ➤ Be sure to include any deviations from the protocol that you may have made.
  - ➤ If an experiment failed, discuss possible reasons.
  - Discuss any challenges that you may have faced, and what you did to overcome them.
- -On one slide, summarize the conclusions of your findings and future directions.
- -Prepare 2-3 slides on a new primary research article related to phage (of your choosing)
  - > Describe the issue, gap in knowledge, and goals of paper
  - Highlight one main important figure from the paper (show the figure on the slide)
  - > Summarize the conclusions of the paper

#### Tips for giving an engaging presentation:

- 1. Fill your slides with more pictures than words.
- 2. If you must include text, keep the font size  $\geq$  18 point, Helvetica or Arial.
- 3. For graphs and tables, make sure the axis labels font sizes are large enough for everyone in the room to see.
- 4. Resist the urge to read text from the slide—convey the main ideas in your own words.
- 5. Speak in a loud and clear voice, and make eye contact with your audience.
- \*Please e-mail me your powerpoint slides by May 7th so I can have them ready the next day
- \*Feedback from the class will be solicited during your presentation to help with grading

Name	Date
tarro	<b>D</b> 410

Talk	Criteria	Rating (Circle one) Notes
1	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to	Strongly Strongly Agree Disagree
	address questions well. They used all the time wisely and did not go over.	10 8 6 4 2 0
	Content-Clarity: Information is presented clearly, and in	Strongly Strongly Agree Disagree
	a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	10 8 6 4 2 0
	Content-Accuracy: Scientific information presented is	Strongly Strongly Agree Disagree
	consistent and accurate.	10 8 6 4 2 0
	Communication and Delivery: Presenter(s) make eye contact,	Strongly Strongly Agree Disagree
	movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	10 8 6 4 2 0
	Overall:	Strongly Strongly Total:
	The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Agree Disagree 10 8 6 4 2 0

Talk	Criteria	Rating (Circle one)	Notes
2	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to	Strongly Strongly Disagree	
	address questions well. They used all the time wisely and did not go over.	10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience	Strongly Strongly Agree Disagree	
	can follow. Visual aids / slides are all readable and look professional.	10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is	Strongly Strongly Agree Disagree	
	consistent and accurate.	10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact,	Strongly Strongly Agree Disagree	
	movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	10 8 6 4 2 0	
	Overall: The presentation was engaging, all	Strongly Strongly Agree Disagree	Total:
	concepts were clearly understood, the research article was clearly presented.	10 8 6 4 2 0	

Talk	Criteria	Rating (Circle one)	Notes
3	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Agree Strongly Disagree  10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Strongly Agree Disagree 10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Talk	Criteria	Rating (Circle one)	Notes
4	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Name	Date
tarro	<b>D</b> 410

Talk	Criteria	Rating (Circle one)	Notes
5	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Agree  10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Talk	Criteria	Rating (Circle one) Notes
6	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Agree Disagree 10 8 6 4 2 0
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Agree Disagree 10 8 6 4 2 0
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Strongly Agree Disagree 10 8 6 4 2 0
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Total:  Agree Disagree  10 8 6 4 2 0

Talk	Criteria	Rating (Circle one)	Notes
7	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Agree Strongly Disagree  10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Talk	Criteria	Rating (Circle one)	Notes
8	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all	Strongly Strongly Disagree  10 8 6 4 2 0	
	the time wisely and did not go over.  Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all	Strongly Strongly Disagree  10 8 6 4 2 0	
	readable and look professional.  Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Agree Disagree 10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Agree Strongly Disagree 10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Name	Date

Talk	Criteria	Rating (Circle one)	Notes
9	Preparation: The presenters seem well-prepared,	Strongly Strongly Agree Disagree	
	well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience	Strongly Strongly Disagree	
	can follow. Visual aids / slides are all readable and look professional.	10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is	Strongly Strongly Agree Disagree	
	consistent and accurate.	10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact,	Strongly Strongly Agree Disagree	
	movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	10 8 6 4 2 0	
	Overall: The presentation was engaging, all	Strongly Strongly Agree Disagree	Total:
	concepts were clearly understood, the research article was clearly presented.	10 8 6 4 2 0	

Talk	Criteria	Rating (Circle one)	Notes
10	<u>Preparation</u> : The presenters seem well-prepared,	Strongly Strongly Agree Disagree	
	well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in	Strongly Strongly Agree Disagree	
	a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is	Strongly Strongly Agree Disagree	
	consistent and accurate.	10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact,	Strongly Strongly Agree Disagree	
	movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	10 8 6 4 2 0	
	Overall: The presentation was engaging, all	Strongly Strongly Agree Disagree	Total:
	concepts were clearly understood, the research article was clearly presented.	10 8 6 4 2 0	

Name	Date
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Talk	Criteria	Rating (Circle one)	Notes
11	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Strongly Agree Disagree  10 8 6 4 2 0	
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Strongly Disagree  10 8 6 4 2 0	
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Disagree 10 8 6 4 2 0	
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Agree  10 8 6 4 2 0	
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Disagree  10 8 6 4 2 0	Total:

Talk	Criteria	Rating (Circle one) Notes
12	Preparation: The presenters seem well-prepared, well-rehearsed, and were able to address questions well. They used all the time wisely and did not go over.	Strongly Agree Disagree  10 8 6 4 2 0
	Content-Clarity: Information is presented clearly, and in a logical sequence that the audience can follow. Visual aids / slides are all readable and look professional.	Strongly Agree Disagree 10 8 6 4 2 0
	Content-Accuracy: Scientific information presented is consistent and accurate.	Strongly Strongly Agree Disagree 10 8 6 4 2 0
	Communication and Delivery: Presenter(s) make eye contact, movements are fluid and help the audience visualize, voice is clear, all audience members can hear.	Strongly Agree Disagree 10 8 6 4 2 0
	Overall: The presentation was engaging, all concepts were clearly understood, the research article was clearly presented.	Strongly Strongly Total: Agree Disagree 10 8 6 4 2 0