

# MCB 181L: Introduction to Cellular and Molecular Biology Laboratory

## University of Arizona Indigenous Land Acknowledgement:

*We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.*

### Times and Location:

Tuesdays 11:00 am – 1:50 pm; 2:00 pm – 4:50 pm;

Wednesdays 8:00 am – 10:50 am; 11:00 am – 1:50 pm; 2:00 pm – 4:50 pm;

Thursdays 8:00 am – 10:50 am; 11:00 am – 1:50 pm; 2:00 pm – 4:50 pm;

or Fridays 8:00 am – 10:50 am; 11:00 am – 1:50 pm; 2:00 pm – 4:50 pm  
in Koffler 420 or 460

## Description of Course

Welcome to Introductory Biology at the University of Arizona! MCB 181L is the laboratory companion course to the BIO181R lecture course. The two courses are independent: the credit and grade for MCB181L is separate from the lecture, and you are **not** required to take the two courses simultaneously (but note that it is recommended). In this laboratory, we will be applying the content covered in the MCB181R lecture course to a series of questions about how and why certain biological systems behave the way that they do. While we will review the key concepts, **it will benefit you greatly to be taking or to have taken the MCB181R lecture course**. We will emphasize critical thinking, problem-solving and cooperative learning.

## Instructor and Contact Information

Course Director: Chad Park ([ckpark@arizona.edu](mailto:ckpark@arizona.edu))

Office Hours: By appointment in Life Sciences South (LSS)

Asst. Director: Emily Dykstra ([edykstra@arizona.edu](mailto:edykstra@arizona.edu))

Office Hours: By appointment in Life Sciences South (LSS)

Instructors: Vary by section. Please see UAccess or D2L for your section's instructor

Office Hours: Lab Instructors for individual sections will announce their office hours the first week of class.

Class website: <http://www.d2l.arizona.edu>

## Course Format and Teaching Methods

Lab with some lecture and in-class discussion on small-group activities and projects.

## Course Objectives

By the end of the semester you will have made gains in the following:

- Design experiments to test predictions with technical advising from your research advisors (i.e., section instructors).
- Analyze experimental results to evaluate elements of an explanatory model.

- Revise an explanatory model in light of additional evidence and/or critique from your research community (i.e., your fellow classmates and section instructors).
- Communicate and defend the elements of your research (explanatory model/hypothesis, predictions, experimental design, results, analysis and conclusions) to your research community.
- Respectfully and productively critique the elements of research produced by other members of your research community.
- Collaborate with other members of your research community at all research stages.

Additional learning objectives specific to each lab will be provided throughout the semester.

### Expected Learning Outcomes

Upon successful completion MCB181L you will be able to:

- Distinguish between a “guess”, a hypothesis, and a scientific theory.
- Organize background knowledge and observations to construct explanatory mechanistic models about biological phenomena.
- Defend conclusions and generate consensus understanding using scientific data.
- Generate biological models, hypotheses, and predictions, and design experiments, including experimental controls.
- Use graphs, tables, and illustrations to appropriately represent scientific data and models.
- Evaluate the validity of various sources of scientific information.

### Absence and Class Participation Policy

The UA's policy concerning Class Attendance and Participation is available at:

<https://catalog.arizona.edu/policy/courses-credit/courses/class-attendance-participation>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable,

<http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Please notify the section Lab Instructor and Tina Gingras ([tmgingras@arizona.edu](mailto:tmgingras@arizona.edu)) of any need for religious accommodation **within the first two weeks of class**, so that we can work together to arrive at a reasonable and fair solution.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <https://deanofstudents.arizona.edu/policies/attendance-policies-and-practices>

**Note: If you know that you will have a number of Dean's Excused Absences, it is your responsibility to register for a lab section that will conflict with the fewest number of these absences.**

### **Laboratory Attendance is Expected for ALL labs**

- Attendance is taken at the start of class.
- **A maximum of 2 makeup assignments will be allowed.** Any missed labs/assignments after these 2 will be given a grade of zero.

- *Please note: Due to the heavy in-class component of this class, it is virtually impossible to miss more than 4 labs and still pass the class, regardless of the absences being excused.*
- If you miss a lab, you can find the make-up assignment for that lab on D2L under Content -> Makeup Assignment. The makeup assignment must be completed two days before your next regularly scheduled lab session. It can be turned in via the 'Assignments' tab on your course D2L page.
  - The late work policies for other course assignments apply to makeup assignments
    - A 10% credit deduction will be assessed prior to grading for late work turned in within 24 hours of the due date. After 24 hours, a 30% credit reduction will be assessed prior to grading.
    - Assignments will only be accepted for credit if turned in within one week of the original due date.
- Late arrivals are not entitled to any additional time on in-lab activities and will lose points on those activities.
- To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or [drc-info@email.arizona.edu](mailto:drc-info@email.arizona.edu). If you are experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

We understand that these are difficult times, and everyone will have their own unique challenges. The above outlined absence policy is what we feel is most fair to our entire group of students. However, we do understand that unforeseen complications may arise which are beyond your control. If you feel you have an extenuating circumstance which prevents you from being able to complete laboratory assignments by their due dates and/or causes you to miss more than two labs, you may email the Assistant Director of Introductory Molecular Biology Labs (Emily Dykstra) at [edykstra@arizona.edu](mailto:edykstra@arizona.edu) to have your situation reviewed. She will base her decision on communications she receives about your situation from the Dean of Students.

Participating in the course and attending lab sessions and other course events are vital to the learning process. As such, attendance is required at all lab session meetings. Absences will affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact your instructor as soon as possible.

### Makeup Policy for Students Who Register Late

Students who register late, may, at the discretion of the directors, be eligible to make-up the first lab assignment. This only applies to excused students and the first week of lab.

Late additions and registration is facilitated by the course coordinator, Tina Gingras ([tmingras@arizona.edu](mailto:tmingras@arizona.edu), (520) 621-9267).

### Course Communications

Online communication will be through UA e-mail and/or D2L.

## Required Texts or Readings

Your section of the lab requires the lab manual, **Authentic Inquiry through Modeling in Biology: A manual for the Molecular and Cellular Biology 181 Laboratory**, available through the UArizona Bookstore. **Be sure to purchase the correct manual by the second laboratory meeting.** Additional online reading will be assigned throughout the semester via the course D2L website.

Availability: purchased lab manual and D2L

## Required or Special Materials

You are required to provide your own laboratory coat, gloves, and safety goggles by the second week of class. Be sure to purchase a 100% cotton lab coat (NOT polyester or other synthetic fabric, which is flammable) and goggles that seal against the side of your face (the same kind that are required for Chemistry labs).

## Assignments and Examinations: Schedule/Due Dates

There are 4 end of unit assignments and 4 presentations. Weekly in-lab assignments are due at the end of class. Presentations and end of unit assignments are due by 11:59 pm two days before your regularly scheduled lab session:

**Week of February 10th - Water Transport Presentation**

**Week of February 17th - Water Transport Model explanation**

**Week of March 17th - Bacteria Presentation**

**Week of March 24th - Bacteria Model Explanation**

**Week of April 7th - Cancer Drug Trial Presentation & Critique**

**Week of April 28th - Chlamydomonas Presentation**

**Week of May th - Chlamydomonas Model Explanation**

A pre-lab quiz will be due by 11:59 pm the night before your regularly scheduled lab session and will be based on the content of the corresponding D2L pre-lab reading.

## Final Examination

There is no final examination or lab practical.

## Grading Scale and Policies

University policy regarding grades and grading systems is available at <https://catalog.arizona.edu/policy/courses-credit/grading/grading-system>

**Pre-Lab Quizzes (20% of final grade):** An online D2L quiz will be available up until 11:59 pm the night before your regularly scheduled lab session. It is a 10 minute timed quiz that can be taken 1 time before your lab. It will draw from previous lab material and pre-lab readings and will consist of multiple choice, multi-select, and/or true/false questions. The lowest quiz score will be dropped.

**In-Lab Assignments & Engagement (40% of final grade):** In-lab assignments represent the process of your research in the lab and will be assigned each week. During most labs, you will collaborate on an online lab notebook submitted to the D2L Assignment folder by the end of lab. You will also prepare a presentation for each unit that will be submitted to the D2L Discussion tab by the end of lab. If anyone cannot access your online lab notebooks or presentations, your group will be given a 50% for your in-lab work for the day. On presentation days, these points will be assessed based on preparedness of your presentation and an individual worksheet.

In addition to the in-lab assignments, engagement with your group and the classroom community is required. In-lab points will be deducted in the event of egregious behavior, i.e., late to class, disruptive behavior, detracting from other's learning environment, repeatedly not following safety instructions, etc. Proper safety and cleanup procedures are required to be followed in each lab. The entire lab section loses points when the lab is not properly cleaned prior to the next section.

**End of Unit Assignments (35% of final grade):** These assignments represent the products of your research in the lab. These will be completed outside of class, turned in via D2L Assignment folders, and will be due by 11:59 pm two days before your next lab session.

**Reflections & Surveys (5% of final grade):** Considering your performance on assignments and your experience in the lab will be an important part of your learning process in this course. You will be asked to complete reflections and surveys throughout the semester to facilitate this. These will be D2L quizzes due two days before your next lab session.

**Calculating final grades:** The final grade will be calculated by combining scores for each category as indicated above. The cutoffs will be  $A \geq 90.0\% > B \geq 80.0\% > C \geq 70.0\% > D \geq 60.0\% > E$ . There is no guaranteed curving of the scores, but we reserve the right to adjust grades in order to ensure uniformity across the lab sections.

**Late work:** A 10% credit deduction will be assessed prior to grading for late work turned in within 24 hours of the due date. After 24 hours, a 30% credit reduction will be assessed prior to grading.

- Assignments will only be accepted for credit if turned in within one week of the original due date.
- Pre-class readings and quizzes prepare you for the coming laboratory activities. For this reason, pre-class quizzes are not accepted late for credit. Please plan accordingly.

**Groups and group work:** Students will most often work in groups of three to four (3 - 4). Students are guaranteed at least one partner so they are in a group of two. However, there may be instances when even this is not possible. In some sections, there may be groups of 2 and groups of 4. Groups may change as needed especially as students drop or add the class. Groups may be seated in different parts of the lab as the semester progresses in order to facilitate active learning for the entire section.

#### Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at

<https://registrar.arizona.edu/records-enrollment/petitions-appeals/university-general-petitions>

#### Scheduled Topics/Activities

Please see the table at the end of this document for this information.

#### Dispute of Grade Policy

If you believe that an error has been made in grading one of your lab reports, you must submit a written regrade request to your instructor via e-mail **within one week** of receiving the graded report. In your regrade request, you should describe what you believe was graded incorrectly, and why you believe it is incorrect.

Typed re-grade requests must also be submitted to the D2L Assignments folder entitled 'Re-grade requests'. Requests not submitted to this folder will not be considered. Please include your name, the assignment name and your LIs name in the file name of the document.

For other grading or grade-entry errors, please contact your section instructor by e-mail **within two weeks** of the results being posted.

Lab Instructors will not discuss re-grade requests during class time. All questions/concerns via grading will be handled in Office Hours or via email.

## Classroom Behavior Policy

### Recommended language:

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

### Additional recommendations depending on instructor preferences:

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

“Disruptive behavior” means conduct that materially and substantially interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting. This type of behavior includes cell phone use, refusing to collaborate, interrupting class activities, excessive derailing and distracting of the discussion, sleeping, newspaper reading, etc. In the event of disruptive behavior by one of the students in the course, the student engaging in the disruptive behavior, regardless of any initiating factors, will be asked to cease the behavior. Those who continue to disrupt the class in any manner will be asked to leave class and may be reported to the Dean of Students. More information can be found here:

<https://deanofstudents.arizona.edu/disruptive-student-behavior>

### Electronic devices in the classroom

Computers are used for many of the labs and there are desktop computers provided for your group use in the lab classrooms. For some labs, you may want to use your own laptop. This is acceptable, but the course is not responsible for your laptop should you choose to use it during class. The use of other devices such as cell phones and tablets is a possible disruption to class. Unless being used for documenting the laboratory experiments (photos of experiments) or otherwise instructed, keep these electronic devices powered off and stowed away.

### Lab safety

These labs have been developed to minimize dangers posed to students. However, we occasionally use equipment or reagents that can cause injury, and accidents sometimes happen.

- Closely follow your instructor’s instructions in the use of dangerous equipment, and in the disposal of all reagents and supplies.
- Report any injury to the prep-room staff or your instructor immediately!

- Showers, eyewashes, fire extinguishers, and first-aid kits are present in case of an emergency.
- Students must supply their own Personal Protective Equipment (PPE) including lab coat, gloves, and goggles. Lab coats are worn for almost every lab. There is a limited supply of used lab coats, but their availability is not guaranteed.
- Teaching slides and lab instructors will alert students to the required PPE for the day and any circumstances surrounding its use. If students fail to wear PPE in class, they will be asked to leave and will lose their in-lab points for the day.

### Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See

<http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

### Accessibility and Accommodations

Recommended language is provided on the Disability Resource Center website:

<http://drc.arizona.edu/instructors/syllabus-statement>.

### Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See:

<https://deanofstudents.arizona.edu/policies/code-academic-integrity>

**Any case of cheating or plagiarism will, at the very least, receive zero points for that assignment, and could result in failing the course and/or your expulsion from the university** as described at <https://deanofstudents.arizona.edu/policies/code-academic-integrity>. **If you are not sure whether something counts as plagiarism, ask your Lab Instructor. When in doubt, cite your sources!**

- The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.
- Sharing your work in a way that allows them to easily copy your files is interpreted as contributing to plagiarism.
- Lying about submission of electronic work will result in a loss of credit for that work and potentially submission of appropriate Honor Code violation paperwork.
- Artificial Intelligence or other writing assistance software or tutoring services may be used only for advice and unreleased drafts. Rough drafts and final assignments must be the student's own work. This means the student has read, reviewed, and revised the source material or given credit via proper citations. Students should be prepared to demonstrate validity of their independent work for sections that appear to be plagiarized or written by AI. All written assignments (docx files) are to be independent work in this class. Powerpoint presentations are usually group work.
- Corrupt, empty or unreadable submissions to D2L Assignment folders will be treated at the very least as late work and will lose points accordingly. Repeated or egregious offenses may be dealt with as Academic Integrity issues.
- If you decide to take and continue in this course, your written submissions will be filtered through a plagiarism-prevention program called TurnItIn.com. You should note that **TurnItIn.com** – always without your name and any personal information – will retain your paper as part of their database so that students who plagiarize your work can be



detected. Because of this program, you will not have to compete with students who commit undetected plagiarism. Anyone who has questions or problems with TurnItIn.com may talk privately about these with the instructor.

- *Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent.* Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

## Nondiscrimination and Anti-harassment Policy

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

## Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

### Campus Health

<http://www.health.arizona.edu/>

Campus Health provides quality medical and mental health care services through virtual and in-person care.

Phone: 520-621-9202

### Counseling and Psych Services (CAPS)

<https://health.arizona.edu/counseling-psych-services>

CAPS provides mental health care, including short-term counseling services.

Phone: 520-621-3334

### The Dean of Students Office's Student Assistance Program

<https://deanofstudents.arizona.edu/dean-students-office>

Student Assistance helps students manage crises, life traumas, and other barriers that impede success. The staff addresses the needs of students who experience issues related to social adjustment, academic challenges, psychological health, physical health, victimization, and relationship issues, through a variety of interventions, referrals, and follow up services.

Email: [DOS-deanofstudents@email.arizona.edu](mailto:DOS-deanofstudents@email.arizona.edu)

Phone: 520-621-7057

### Survivor Advocacy Program

<https://survivoradvocacy.arizona.edu/>



The Survivor Advocacy Program provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support.

Email: [survivoradvocacy@email.arizona.edu](mailto:survivoradvocacy@email.arizona.edu)

Phone: 520-621-5767

## Campus Pantry

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. In addition, the University of Arizona Campus Pantry is open for students to receive supplemental groceries at no cost. Please see their website at: [campuspantry.arizona.edu](http://campuspantry.arizona.edu) for open times.

Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources that I may possess.

## Wellbeing Statement

As a student, you may experience stressors that impact your academic career and personal well-being. These can include but are not limited to, academic pressure, mental and emotional health, challenges associated with relationships, alcohol or drug misuse, identities, financial challenges, etc.

Pay attention to your personal signs that you're overly stressed, like changes in your mood, appetite, sleep, behavior, or new physical symptoms (aches, pains, etc.) that interfere with school and daily life. If you or a friend is struggling, we strongly encourage you to seek support. Seeking help is a courageous thing to do for yourself as your well-being is important. The University of Arizona offers multiple resources to promote your well-being and success as an individual. If you are struggling with this class, please visit during office hours or contact me by email.

## Preferred Name & Pronoun

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is on the class roster, please let me know. Feel free to correct instructors on your preferred gender pronoun. If you have any questions or concerns, please do not hesitate to contact me directly in class or via email (instructor email). If you wish to change your preferred name or pronoun in the UAccess system, please use the following guidelines:

**Preferred name:** University of Arizona students may choose to identify themselves within the University community using a preferred first name that differs from their official/legal name. A student's preferred name will appear instead of the person's official/legal first name in select University-related systems and documents, provided that the name is not being used for the purpose of misrepresentation. Students are able to update their preferred names in UAccess.

**Pronouns:** Students may designate pronouns they use to identify themselves. Instructors and staff are encouraged to use pronouns for people that they use for themselves as a sign of respect and inclusion. Students are able to update and edit their pronouns in UAccess.

More information on updating your preferred name and pronouns is available on the Office of the Registrar site at <https://www.registrar.arizona.edu/>.

## Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): <https://cirt.arizona.edu/case-emergency/overview>

Familiarize yourself with the Koffler Evacuation and Active Shooter plans specific to Rooms 420, 430, 450 & 460:

[https://docs.google.com/document/d/1EvIWc\\_2YRJhkoHZClIzhZSlc6xj4zmf/edit?usp=sharing&ouid=102472408466690965444&rtpof=true&sd=true](https://docs.google.com/document/d/1EvIWc_2YRJhkoHZClIzhZSlc6xj4zmf/edit?usp=sharing&ouid=102472408466690965444&rtpof=true&sd=true)

Also watch the video available at

[https://arizona.sabacloud.com/Saba/Web\\_spf/NA7P1PRD161/common/learningeventdetail/crtfy00000000003560](https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy00000000003560)

## Confidentiality of Student Records

<http://www.registrar.arizona.edu/ferpa>

## Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

Any information that individual MCB 181 Lab Instructors provide that is contradictory to the policies laid out in this syllabus will not be honored by course administration. Please be sure to consult the syllabus regarding any course policy questions.

SPRING 2025 Please be advised that these are projected due dates, but that due dates posted in D2L replace any found here.						
	Lab	Date	Lab	Pre-Lab Reading & Quiz due 11:59 pm the night before your regularly scheduled lab session	At-Home Assignments assigned during the lab and generally due by 11:59 pm two days before your regularly scheduled lab session	Date
	1	January 21, 22, 23 & 24	Introduction to the Lab	Syllabus & Pre-Lab Quiz		January 21, 22, 23 & 24
	2	January 28, 29, 30 & 31	Introduction to Viewing Cells and Water Transport	Lab 2 Pre-Lab Reading & Pre-Lab Quiz	Pre Estrada Survey: Due by 11:59pm January 26, 27, 28 & 29	January 28, 29, 30 & 31
	3	February 4, 5, 6 & 7	Water Transport in Different Cell Types	Lab 3 Pre-Lab Reading & Pre-Lab Quiz		February 4, 5, 6 & 7
	4	February 11, 12, 13 & 14	Water Transport Presentations		Water Transport Presentation Slides: Due by 11:59pm February 9, 10, 11 & 12	February 11, 12, 13 & 14
	5	February 18, 19, 20 & 21	Bacteria Lab - Part 1	Lab 5 Pre-Lab Reading & Pre-Lab Quiz	Water Transport Model Explanation: Due by 11:59pm February 16, 17, 18 & 19	February 18, 19, 20 & 21
	6	February 25, 26, 27 & 28	Bacteria Lab - Part 2	Lab 6 Pre-Lab Reading & Pre-Lab Quiz		February 25, 26, 27 & 28
	7	March 4, 5, 6 & 7	Bacteria Lab - Part 3		Reflection 1: Due by 11:59pm March 2, 3, 4 & 5	March 4, 5, 6 & 7
		March 11, 12, 13 & 14	No labs; Spring Break	No labs; Spring Break	No labs; Spring Break	March 11, 12, 13 & 14
	8	March 18, 19, 20 & 21	Bacteria Presentations		Bacteria Presentation Slides: Due by 11:59pm March 16, 17, 18 & 19	March 18, 19, 20 & 21
	9	March 25, 26, 27 & 28	Modeling Tumor Metastasis - Part 1	Lab 9 Pre-Lab Reading & Pre- Lab Quiz	Bacteria Model Explanation: Due by 11:59pm March 23, 24, 25 & 26	March 25, 26, 27 & 28
	10	April 1, 2, 3 & 4	Modeling Tumor Metastasis - Part 2	Lab 10 Pre-Lab Reading & Pre- Lab Quiz		April 1, 2, 3 & 4
	11	April 8, 9, 10 & 11	Chlamydomonas - Part 1	Lab 11 Pre-Lab Reading & Pre- Lab Quiz	Cancer Drug Trial Critique: Due by 11:59pm April 6, 7, 8 & 9	April 8, 9, 10 & 11
	12	April 15, 16, 17 & 18	Chlamydomonas - Part 2	Lab 12 Pre-Lab Reading & Pre- Lab Quiz	Reflection 2: Due by 11:59pm April 13, 14, 15 & 16	April 15, 16, 17 & 18
	13	April 22, 23, 24 & 25	Chlamydomonas - Part 3			April 22, 23, 24 & 25
	14	April 29, 30, May 1 & 2	Chlamydomonas Presentations		Chlamydomonas Presentation Slides: Due by 11:59pm April 27, 28, 29 & 30	April 29, 30, May 1 & 2
		May 6, 7, 8 & 9	No Labs; Finals Start May 9		(1) Chlamydomonas Model Explanation (2) Post Estrada and Project Ownership Surveys (3) End of Semester Reflection: Due by 11:59pm May 4, 5, 6 & 7	May 6, 7, 8 & 9