

BIO 5610
Winter 2019 Syllabus

Instructor information:

Shashwat Mishra (fc2427@wayne.edu)

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Class schedule:

Shashwat Mishra: Tuesday (12:30 PM to 3:20 PM)

Deniz Sifoglu: Wednesday (4:00 PM to 6:50 PM)

Office hours: By appointment only (To be arranged through e-mails)

Lab location: 316 Shapero Hall

Class website: Canvas will provide all the information pertaining to course and course material. Please check Canvas frequently so you don't miss anything.

Course materials: Students must bring a lab-notebook that will be used for reference while finishing the lab reports and studying for the exams.

Course description: The goal of this course is to learn how to approach experimental questions that are pertinent to the development of the different species. The students will be introduced to the topics and learn to:

- Identify the question(s)
- Devise experimental approaches to address the question of interest
- Dissect the experimental results
- Make conclusions based on observations

Course schedule:

Lab no.	Date	Topic	Points	Model organism
1	1-15-19 1-16-19	Introduction to the <i>C. elegans</i> life cycle and the influence of the sensory nervous system on development	10	<i>C. elegans</i>
2	1-22-19 1-23-19	Tracing the importance of cell specification during development through behavioral assays	10	
3	1-29-19 1-30-19	Mapping the pattern of segmentation in developing embryos (I)	10	<i>D. melanogaster</i>
4	2-5-19 2-6-19	Mapping the pattern of segmentation in developing embryos (I)		

5	2-12-19	Effect of segmentation on neurogenesis during development	10	
	2-13-19		Submit proposal topic	
6	2-19-19 2-20-29	Exam 1	100	
7	2-26-19 2-27-19	Regeneration in Planaria	10	Planaria
8	3-5-19 3-6-19	Vertebrate development	10	Vertebrate
9	3-12-19 3-13-19	Spring break		
10	3-19-19 3-20-19	Fertilization	10	Sea Urchin
Must submit hypothesis and specific aims before next lab				
11	3-26-19 3-27-19	Proposal discussion: Hypothesis and Aims	7.5	
12	4-02-19 4-03-19	Exam II	100	
13	4-09-19 4-10-19	Proposal discussion: methods, outcomes, alternative approaches	10	
14	4-16-19 4-17-19	Final Exam: Research Proposal Submission	100	

Lab Report: Students are required to keep records of the experiments. For each session, one experiment will be performed. Details of experiments, like materials and methods, observations and results of each experiment, should be recorded. After the lab, everyone must submit a lab report that should include:

- **Introduction:** This section will include background information (1 to 2 sentences), the question that is being addressed, hypothesized results and conclusions.
- **Materials and methods:** This section will discuss the protocol followed and the reagents used.
- **Results:** The observations and calculations will be explicitly stated in this section with the help of graphs, tables or illustrations.
- **Discussion:** This section will discuss the obtained results and list the conclusions that can be made from the observed results. If the observed results do not match with the hypothesized results, this section will also extrapolate and explain the reason for the differences, like experimental artifact, environmental influences, etc.

Each lab report will carry 10 points. The lab report should be single-spaced, font size

12, and not more than 2 pages. **If you go beyond 2 pages, you will lose 1 point.** The TAs will further explain how to write the lab reports on the first day of the course.

This lab report must be submitted electronically **via email within 48 hours after the lab.** Tuesday's lab will submit lab report by Thursday 3:20 PM, and Wednesday's lab by Friday 6:50 PM. **Any lab report submitted after these deadlines will be considered late.** You will lose 10% points for every day of late submission.

One lab report with the lowest grade can be dropped. Labs numbered 3 and 4 will have a single, combined lab report. **This combined report cannot be dropped.**

Labs numbered 11 and 13 will be discussion sessions about your research proposal, where each student will talk about his/her hypothesis/aims/methodology/possible outcomes and participate in discussing other students' presentations. Each discussion session will be worth 10 points, *i.e.*, each student will be graded 5 points for his/her own presentation in each session and 5 points for his/her participation in the ensuing discussion in each session. 2.5 points of lab 11 is based on submission of lab proposal topic before 2/12/19 for Tuesday lab and 2/13/19 for Wednesday lab.

Any challenge/dispute regarding lab report grades must be brought to the TA's attention within 2 business days of the date when the report is returned.

Research proposal as final exam: Please refer to the file that lists the guidelines on how to write the research proposal, which will be a take-home exam. The TAs will also explain what is expected for the proposal once the course has started.

Lab policies:

- Attendance is mandatory. You will be tested on specimens, slides and experiments that are only available in lab and for that period, *e.g.*, you cannot view last week's specimens and/or slides in the current week. Similarly, you cannot perform last week's experiment in the current week.
- It is strongly recommended that you read the assigned material before attending each lab, as it will keep the lab at a good pace and we will be able to cover what is scheduled.
- The microscopes, slides and all lab reagents and materials must be handled with proper care.
- Everything must be returned to their proper location once each experiment is done.
- There will be no make-up points for any assignment or exam.
- If a student misses the lab because of a valid reason, *e.g.* job interview, health problems etc., he/she will have to provide valid documentation regarding the issue. If the student can, he/she must inform the TA before the lab time. If the student fails to provide any of the above, he/she will get a zero for the lab and will not be allowed to do a make-up experiment. If the student submits proper documents, he/she will be allowed to write a report based on hypothetical results/thought experiments regarding the week's lab.

Grading

- In general, grades will be calculated on a straight scale, based on a grand total of 380 points. There are 2 lab practical exams worth 100 points each. There will also be a research proposal (take-home final exam) that is worth 100 points. The lab reports will be worth another 80 points (10 points per lab report; and this will also include the marks for the discussion sessions). It is your responsibility to keep track of your grades with the instructor.

Grades will be calculated on the following %:

Letter grade	Percentage
A	92.5-100
A-	90.0-92.4
B+	87.5-89.9
B	82.5-87.4
B-	80.0-82.4
C+	77.5-79.9
C	72.5-77.4
C-	70.0-72.4
D+	67.5-69.9
D	62.5-67.4
D-	60.0-62.4
F	0-59.9

Cheating Policy: Cheating is banned by the Wayne State University Code of Conduct, found at http://www.doso.wayne.edu/student-conduct/Academic_Integrity.html . A student found to be cheating during an exam (using a “cheat sheet”, looking at another’s paper, allowing another to look at yours, etc.) will receive a zero for that test with no opportunity to drop that grade. The instructor also reserves the right to pursue further disciplinary measures, such as issuing an "F" grade for the course and taking further university disciplinary action. No electronic devices (cell phones, blackberries, iPods, computers, cameras, calculators, smart watches, etc.) are to be present at an exam.

Withdrawal Policy

You may drop the class and have tuition reimbursement till Friday, January 18, 2019. After Saturday, January 19, 2019, you may withdraw with the instructor’s approval and receive a grade of WP or WF (withdrawal passing, withdrawal failing). Your grade (WP or WF) will be determined by your assignments and exam grades up to that time. The WP grade will be given for grades of 60% and higher. **After Sunday, March 24, 2019, you cannot withdraw, regardless of the circumstances. This is university policy and cannot be overridden.**

Add/Drop/Incomplete Policy:

Add Policy: Add forms will not be signed after the first week of class.

Incomplete Policy: Please note that “incomplete” grades will not be issued to students in poor standing and who are seeking an alternative to a late drop. Also, any "I" given to a student will automatically revert to "F", if the work is not completed within one calendar year. There are no exceptions. Further information on grading policy can be found at <http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm>.

Students with Disabilities: If you have a documented disability that requires accommodations, you will need to register with the Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-577-3365 (TDD only). Once you have your accommodations in place, the TA will be glad to meet with you privately to discuss your special needs. The Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

Changes to Syllabus: We reserve the right and discretion to amend or change parts of this syllabus if circumstances arise that necessitate such changes. Any such changes will be distributed to the whole class in writing and posted on Blackboard.

Unexpected University Closures: If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms:

1. University Newline (313) 577-5345 *
2. WSU Homepage (www.wayne.edu) *
3. WSU Pipeline (www.pipeline.wayne.edu) *
4. WDET-FM (Public Radio 101.9)
5. by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcasted by local radio and television stations.

Other: Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University “Student Due Process”.