

BIOL 419 012/BIOL 519 012: DISCOVERIES IN MOLECULAR BIOLOGY SYLLABUS

Course Information:

BIOL 419 012 (CRN: 58206)
BIOL 519 012 (CRN: 58207)

Mitchell Hall 105
Tuesday/Thursday 12:30-1:45

Instructor:
Dr. Michelle Facette
Casterter 245
277-3711
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Office hours:

Tuesdays 2:00-3:15 or by appointment. Students are encouraged to discuss material if they feel the need; please don't hesitate to make appointments.

Course Materials: (Syllabus, Rubrics, Class Schedule, PDFs of assigned papers, and other handouts) will be on the UNMLearn site for this course. The Syllabus and Class Schedule is also available on the Facette Lab webpage at <http://facettelab.weebly.com/courses.html>

Course Description:

Discoveries in Molecular Biology is a lecture/seminar-based class. The class will discuss science that led to a Nobel Prize in Chemistry or Nobel Prize in Physiology and Medicine each week. Dr. Facette will introduce the science, including the context (i.e., the current state of knowledge at the time) and why the discovery was significant; provide detailed explanations of any unique techniques used or contemporary science relative to the discovery; and highlight any modern-day applications or derivative discoveries. In a subsequent follow-up class, students will present a seminal paper relevant to the Nobel discovery.

Course Goals:

The aims of this class are several fold. Firstly, the students should acquire a knowledge (and appreciation) for some of the most pivotal and influential science in molecular biology. Secondly, students should become experts at reading and assessing primary literature. This includes not only understanding the methods and results, but also being able to distill the key elements of a paper. Thirdly, students will acquire proficiency at explaining science to others – both at an advanced level to peers, as well as at a more basic level to those without advanced science knowledge.

Grading:

I.	Student Presentation	30%
II.	Completion of Peer Review Forms	10%
III.	Participation in Class Discussions	10%
IV.	Written Press Releases (4x5%)	20%
V.	Position Paper	30%

I. Student Presentation

After several introductory weeks, 1 class per week (Tuesday class) will be a student presentation of a seminal paper relating to the chosen Nobel Prize. Dr. Facette will lecture on the same topic the Thursday prior to the presentation. The papers have been pre-selected. The first week, students will rank their top 2-3 choices and the papers will be subsequently assigned. Presentations should be ~45 minutes long, and the remaining class time will be used for class discussion. See attached rubric for grading.

II. Completion of Peer Review Forms

Students will be asked to fill out a form questionnaire, in class, assessing each of the student presentations. Completion of these questionnaires will contribute towards 10% of the students' final grade. These assessments will be considered by Dr. Facette when assigning the grade for the student.

III. Participation in Class Discussions

Every student is expected to read **all** of the papers that are presented prior to the Tuesday student presentation. After each presentation, a discussion will take place where every student is expected to participate by: asking in-depth questions about any methods they did not understand and/or found particularly novel or interesting; any insights the presentation or discovery gave them with respect to either their personal work or subsequent work done by other scientists; etc.

IV. Written Press Releases

Once you have read and understood the science behind a Nobel-winning prize, you should be able to share your new knowledge with your friends and family that may not be trained biologists. An important step beyond understanding something is being able to explain it to someone else. Each student will be required to submit 4 x 1-page press releases describing the research. Students may submit a 5th press release; if so, then only the best 4 grades will contribute to the final grade. Any of the discussed Nobel prizes from throughout the course may be selected by the student. Press releases are due at the beginning of class on Tuesdays, after the presentation by Dr. Facette but before the student presentation of the week's selected paper.

V. Position Paper

By the end of the semester, each student will have gained expertise in reading, assessing, and explaining some of the most exciting science in the field of cell and molecular biology. However, many ingenious and pivotal discoveries have been made by many scientists who have not won the prize, for any number of reasons. This includes discoveries that were not (or have not yet) been acknowledged by the Nobel committee, or a scientist who may have worked on and contributed towards aspects of a discovery that was awarded the prize, but they were not recipients. Select either a single scientist, or group of scientists, and argue why the work that they have done entitles them to win the Nobel prize in a 3- to 5-page position paper. Several classes will be dedicated to helping you choose whom to pick (see class schedule). Note that it is less important to pick the "right" person, and more important to make a clear argument as to why their work, in your opinion, is important.

Class Attendance:

An important component of this class is active participation in the discussions, therefore class attendance is critical. It is understood that unforeseen events may occur, so please bring any missed classes to the attention of Dr. Facette. Absences may influence the class participation and/or peer review portion of the grades.

Policy on plagiarism:

Plagiarism and other forms of academic dishonesty will not be tolerated. All works should be written by the student in his/her own words and properly cited. Given the nature of the assigned work for this class, this is especially relevant. The written press releases and term paper must be original; there are ample sources on the internet for these so *be careful*. Citation is key. For example, it is acceptable to reproduce images in your presentation from a textbook or paper for your presentation, but they must be cited. If in doubt, please consult with Dr. Facette. More information on UNM's policy and consequences can be found at UNM's policy on Academic Dishonesty (<https://policy.unm.edu/regents-policies/section-4/4-8.html>), *Pathfinder* (<https://pathfinder.unm.edu/common/policies/academic-dishonesty.html>) and/or the Student Code of Conduct (<http://pathfinder.unm.edu/campus-policies/student-code-of-conduct.html>).

Accommodation Statement

Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

Title IX Disclosure Statement

Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please

access the resources available to you on campus, especially the LoboRESPECT Advocacy Center and the support services listed on its website (<http://loborespect.unm.edu/>). Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: <https://policy.unm.edu/university-policies/2000/2740.html>. LoboRESPECT Advocacy Center, Women's Resource Center and the LGBTQ Resource Center have specially trained advocates and they do NOT share information with anyone else without a student's signed permission.