

MMBIO 390R Readings in Molecular Biology
Fall 2025 T 2:00-2:50 LSB 2146

INTRODUCTION

Instructor: David Erickson, Ph.D.

Office Hours: M W 2-3 **or by appointment**, 3133 LSB david_erickson@byu.edu

Prerequisite: MMBIO 240

Course Description: This offering of MMBIO 390R will explore the **molecular biology of vaccination**. Students will read, critically analyze, present, and discuss scientific research papers related to this topic.

This course is aligned with the *Aims of a BYU Education* (<http://unicomm.byu.edu/president/aims.aspx>) by promoting “sound thinking--reasoning abilities that prepare students to understand and solve a wide variety of problems, both theoretical and practical”, developing “a recognition of the power and limitations of the scientific method”, and preparing students to “make a difference in the world”.

The **anticipated learning outcomes** of this course are that students will:

1. Understand the mechanisms whereby vaccines protect us from disease and appreciate their societal impact.
2. Evaluate research published in the field of molecular biology.
3. Contribute to a community of learners through oral presentations and responding to others' ideas.

COURSE STRUCTURE

We will read eleven peer-reviewed scientific papers that represent significant advances in the field of vaccinology. They will be about vaccines to prevent diseases caused by bacteria, viruses, parasites, and cancer. All class members will be assigned as a group (2-3 students) to **present one figure from the paper**. Group assignments will change each week.

EVALUATION

Eleven paper presentations

450 points cumulative, variable weights

Final exam

50 points

Total:

500 points

Final grades will be assigned according to the following scale:

93%	A	80%	B-	67%	D+
90%	A-	77%	C+	63%	D
87%	B+	73%	C	60%	D-
83%	B	70%	C-	0%	E

GUIDING PRINCIPLES

Communication

Please **do NOT use the Learning Suite message** system to communicate with the instructor. Use direct email (david_erickson@byu.edu). Email correspondence should be concise, well-crafted, and follow etiquette guidelines common to academic settings (eg. <http://web.wellesley.edu/SocialComputing/Netiquette/netiquetteprofessor.html>). These include using an informative subject header, using names when addressing (not “Hi Professor”), and having realistic expectations for timelines in receiving replies.

Belonging

Please do not use any racist, sexist, or otherwise demeaning language in your interactions with other students. Please be professional, courteous, and kind while working with everyone in this class. Don't abuse other's good will by failing to complete tasks or contribute to discussions.

Deliberation Guidelines

Please facilitate productive and open discussions, especially in group work, by:

- (1) Remembering that we are each responsible for enabling a productive, respectful dialogue.
- (2) Enabling time for everyone to speak - strive to be concise with your thoughts.
- (3) Respecting all speakers by listening actively.
- (4) Treating others with the respect that you would like them to treat you with, regardless of differences.
- (5) Refraining from interrupting others.

- (6) Trying to understand what is being said before you respond.
- (7) Asking for clarification instead of making assumptions.
- (8) When countering an idea, or making one initially, demonstrate that you are listening to what is being said by others. Try to validate other positions as you assert your own.
- (9) Under no circumstances should an argument continue out of the classroom when someone does not want it to. Extending these conversations beyond class can be productive, but we must agree to do so respectfully, ethically, and with attention to individuals' requests for confidentiality and discretion.
- (10) Remembering that exposing yourself to different perspectives helps you to evaluate your own beliefs more clearly and learn new information.
- (11) Remembering that just because you do not agree with a person's statements, it does not mean that you cannot get along with that person.
- (12) Speaking with your professor privately if you feel that these guidelines are not being followed.

Children in the classroom

All young children who are not yet mobile are welcome to join their parents in class, including breastfeeding infants. These parents should sit near the exits so that they can easily leave if it becomes necessary. Please reserve these seats for parents with children. Older children can also attend class when unforeseen childcare disruption occurs with or without advance notice. Please be aware that some topics or images of infectious diseases may not be appropriate for children.

BYU Honor Code and Strategic Aims

In keeping with the principles of the BYU Honor Code, students are expected to act in ways that promote a sense of belonging among all members of the campus community and to be honest in all their academic work.

Students With Disabilities: Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability that may impair your ability to complete this course successfully, please contact the Services for Students with Disabilities Office (422-2767). Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by the SSD Office. If you need assistance or if you feel you have been unlawfully discriminated against based on disability, you may seek resolution through established grievance policy and procedures. You should contact the Equal Employment Office at 422-5895, D-282 ASB.

Preventing Sexual Harassment: Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter unlawful sexual harassment or gender-based discrimination, please talk to your professor; contact the Equal Employment Office at 422-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 422-2847.

ASSIGNMENT DESCRIPTIONS

Presentations

Students will be placed into groups (2-3) and each group will be assigned a figure or portion of a figure from the assigned paper. The groups will change each week. Each group should prepare a single slide and plan to spend 5-7 minutes explaining their assigned figure. The presentations should achieve the following five major goals and will be evaluated according to how well they achieve these objectives. First, the specific question or hypothesis that the researchers wanted to address in that figure should be explained. Second, the experimental approaches used by the investigators should be succinctly but accurately described. Third, the controls and experimental groups for the experiment should be identified. Fourth, the results should be summarized in a clear way. Fifth, the conclusions/interpretations of the data made by the investigators should be critiqued. **Students must attend class and participate in the presentation to receive credit, and each member of the group will be given the same grade for the paper presentation.** The nature of these assignments will not change, but the weighting of the assignments will be lower at the beginning of the semester and gradually increase.

Final exam

The final exam will be summative in nature. It will be held on December 16 at 3:00 pm in LSB 2146. The final exam will not be rescheduled for individual students for any reason.