

BIOL B352: IMMUNOLOGY**BRYN MAWR COLLEGE**

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Group Zoom Office Hours: M. 5-6p, F. 1:10-2p
 Individual zoom meetings by appointment:
calbird.com/adam-williamson/student-hours

OVERVIEW

An introduction to immunology with a focus on the dynamic network of molecules and cells underlying the vertebrate immune response. This problem-based workshop course uses primary research articles and a curiosity-driven, open-ended laboratory research project to make sense of complicated biology and empower each student to build a big-picture view of this fast-moving, interdisciplinary field. Key themes include: immune cell specification and development; molecular recognition and immune cell signaling; generation of immunological memory; and cancer immunotherapies. Learning strategies include problem solving, small group discussion, and analysis of the primary literature.

COURSE COMPONENTS

Recorded Lectures: Two ~20 min lectures posted on Moodle by Wed. evening of week prior

Workshops & Journal Clubs (Virtual): Mon. and Thurs. 8:30 am - 9:30 am

(Please note delayed start to compensate for the 40 min/week spent engaging with recorded lectures)

Laboratory (Hybrid): Thurs., Park 126, Section A: 1:10 pm - 2:30 pm, Section B: 2:40 pm - 4 pm

Class Formats (Indicated for each class meeting on the Lecture-Discussion Syllabus on Moodle):

Workshops are in class problem solving sessions related to recorded lectures and reading

Journal Clubs combine small group and whole class conversation about a research article

Roundtables are reflective opportunities to hear from every student as a whole group

LEARNING GOALS *After this course you will be able to...*

- Formulate a broad understanding of how the molecules and cells that make up the immune system interact to protect organisms and promote homeostasis.
- Learn how to read and discuss primary scientific literature and write thoughtful, substantive responses to immunology research articles.
- Make sense of the complexity of the immune response by developing a rigorous conceptual understanding of immunology.

KEY THEMES

- Immune cell biology and cell-cell interactions
- Generation of molecular diversity and immunological memory
- Dynamics of the immune response in space and time
- Immunotherapies rooted in fundamental immunology
- Impact of structural racism on scientific research
- Contributions by women and other people underrepresented in immunology

CRITIQUED AND EVALUATED WORK

1. Weekly Response Papers

Format: 1-2 page written response to a prompt related to the week's immunology research article.

Purpose: Enable opportunities reflect on the research article in a meaningful way and demonstrate both technical and conceptual understanding of the work. These response papers are the core assessment mechanism for the course and are designed to couple assessment to a key learning goal: how to read primary research literature.

Logistics: Due on Moodle each Sunday, 11:59 pm EST. Please submit your work as a PDF to enable Adam to provide feedback effectively.

Grading: Each response graded out of 10 pts. Rubric under "Grades and Grading scale" below. Instructor will indicate grade out of 10 pts in Moodle and provide written feedback.

2. Checkpoints

Format: Short Moodle quiz or open response each week.

Purpose: Provide opportunities to engage with course material each week and enable students to receive credit for time and effort spent engaging with pre-recorded lectures and synchronous Monday workshops.

Logistics: Due on Moodle each Wednesday, 11:59 om EST. Checkpoints will be posted after class on Mondays under the appropriate Moodle header.

3. Final Questions about Current Research Article

Format: Short response questions related to a current research article designed to take 3 hours to complete (self-scheduled final exam posted 5/7, due 5/22 5pm, end of finals).

Purpose: Provide an opportunity for student to meaningfully engage with a new immunology research article and a chance to communicate their understanding of cutting-edge science.

Logistics: Due on Moodle as a PDF at the end of finals (Saturday 5/22, 5pm EST)

4. Lab Assignments

Format: Written assignments related to immunology research project and lab workshops.

Purpose: Opportunity for meaningful engagement with the curiosity-driven lab project and the practice of science.

Logistics: Due on Moodle under the "Immunology Research Lab" header as indicated.

GRADES, ASSIGNMENTS, AND PROVISIONAL GRADING SCALE

Grades on Moodle: The overall course grade visible on Moodle is not a reflection of your current grade for the course. I understand this is confusing for students. So why is it this way? The Moodle gradebook requires the instructor to enter percentages for each assignment prior to the term and is somewhat inflexible if changes are required during the semester. Because we are working under uncertain circumstances this term it is important to me that there be some flexibility on assignments. **I will send each student a summary of their graded work and current course percentage after Week 5 and after Week 10. If you would like to opt out of grade reports please let me know.**

Course assignments:

Course assignments and corresponding weights indicated below. Course graded out of 180 points. Please note Response papers, Final questions, and Lab assignments are graded. Checkpoints marked for completion only. Weight and number of assignments subject to change if necessary.

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|---|----------------------|
| 8 Response Papers (out of 11 total), rubric below | 80 pts (10 pts each) |
| 8 Checkpoints (out of 11 total), completion only | 40 pts (5 pts each) |
| Final questions about current research article | 30 pts |
| 3 Lab Assignments (out of 4 total) | 30 pts |

Dropped assignments: I will drop 3 Response Papers, 3 Checkpoints, and 1 Lab assignment in calculating your final grade.

Rubric for response papers: Short written responses to a weekly prompt (two page double spaced maximum) due each Sunday at 11:59 pm EST. Graded as indicated below (10 points/response – 3 Responses dropped in calculating your final grade).

10/10 – Exceptional work. Instructor indicates that student demonstrates outstanding technical and conceptual understanding of the article and the ability to communicate a thoughtful response.

9/10 – Excellent work. Instructor indicates that the student demonstrates a strong technical and conceptual understanding of the article.

8/10 – Complete work. Instructor is able to follow student’s logic and prose. Student responds to prompt in a complete manner.

7/10 and below - Areas for growth. Instructor indicates two or more significant areas of growth for the response.

Checkpoints: Short quizzes or open-ended responses on Moodle due each Wednesday at 11:59 pm EST. Graded on completion only (5 points/week – 3 Checkpoints dropped in calculating your final grade).

Final questions about current research article: Our self-scheduled final “exam” will take the form of written answers to questions about a current research article. The questions are

designed to take the student a maximum of 3 hours to complete, in accordance with BMC's finals policy. The questions and article will be posted on Moodle on May 7th, enabling each student to submit their work at their convenience depending on other classes or commitments. The final questions are due at the end of finals, Sat. 5/22 5pm EST.

Lab assignments. 4 total lab assignments related to the course project and a workshop about racism and research funding will occur throughout the term as indicated on the lab syllabus. One lab assignment will be dropped in calculating your final grade.

Grades for this course will likely be assigned as follows:

93 - 100% = 4.0
 90 - 92% = 3.7
 87 - 89% = 3.3
 83 - 86% = 3.0
 80 - 82% = 2.7
 77 - 79% = 2.3
 70 - 76% = 2.0

RESOURCES

Office Hours

Office hours with your instructors offer you an opportunity to discuss aspects of course material you find interesting and/or challenging, develop your academic professional network, and represent an important piece of academic science's "hidden curriculum."

I have scheduled group student office hours Monday 5-6 pm and Friday 1:10 pm - 2 pm. To schedule a time to meet individually by appointment please use Calbird – weekly times available to serve students across time zones. **If you are joining us from another time zone please note times on Calbird are indicated in EST.**

Textbook

The text for this course is Kuby Immunology 8th edition (2019). Dr. Jenni Punt, Dr. Sharon Stranford, Dr. Patricia Jones, and Dr. Judy Owen, the four authors who made this scholarly contribution to our field, extensively reworked the book and added chapters that address our key themes. The text also includes an excellent glossary.

Moodle

The Moodle header contains links for course zoom links and other materials, organized by theme and week. Immunology Lab materials are located under a separate header. Lecture-Discussion slides (Powerpoint and PDF format) will be posted to Moodle along with recorded lectures. Moodle will also be our repository for outside readings. All evaluated written work will be submitted using Moodle. **Please use PDF format when submitting your Response papers to enable the instructor to provide feedback directly on the document – thank you!**

CLASS NORMS

I am committed to help build an inclusive immunology learning and research environment that supports students with different prior experiences and learning styles. Class Norms resulting from our community efforts to implement TLI's guidelines towards "Making Our Classrooms Places of Inclusion and Belonging" (please see Cook-Sather, A., & Des-Ogugua, C. (2018). DOI: [10.1080/13603116.2018.1441912](https://doi.org/10.1080/13603116.2018.1441912)) will be established early in the second week of the semester as a group. All members of our learning-research community will have the opportunity to help shape our Class Norms.

ATTENDANCE

The course goals, themes, and lecture-discussion materials form a scaffold for our course. I hope that the Monday and Thursday course meetings are useful for your learning and I expect you to engage with pre-recorded lectures and attend all synchronous sessions unless your circumstances make attendance impossible. That said, I am fully cognizant that we are all working in the context of a pandemic and other stressors and this will be a challenging term. I will work with you to figure out a path forward in the class if you are unable to complete work for an extended period of time. **If you are able I ask that you keep in contact directly with me or through your dean if you anticipate missing more than one class meeting in succession.**

DEADLINES

Please submit your work on Moodle by the deadline to protect your time and allow me to provide actionable feedback in a timely manner. Please note multiple Responses and Checkpoints and one Lab assignment are dropped when calculating your final grade (see Grades and Grading Scale). I will discuss extensions on a case by case basis. When requesting extensions please remember multiple assignments are dropped in calculating your final grade.

Accommodations (*italicized text from BMC Access Services*)

Students needing academic accommodations for a disability must first register with Access Services. Students can call 610-526-7516 to make an appointment with the Director of Access Services, Deb Alder, or email her at dalder@brynmawr.edu to begin this confidential process. Once registered, students should schedule an appointment with the professor as early in the semester as possible to share the verification form and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement. More information can be obtained at the Access Services website. (<http://www.brynmawr.edu/access-services/>)

Recording class (*italicized text courtesy of BMC Access Services*)

Any student who has a disability-related need to record this class first must speak with the Director of Access Services and to me, the instructor. Class members need to be aware that full class meetings may be recorded.