

HLTH B398: Health Studies Senior Seminar**Immunotherapy**

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OVERVIEW

A senior seminar in Health Studies focused on immunotherapy for human disease. Immunotherapy is an emerging and fast-moving field that uses a fundamental understanding of the immune system to discover and develop novel treatments for complex human diseases including cancers, autoimmune conditions, and neurodegenerative diseases. We will begin the semester with a broad introduction to human immunology. Subsequent topics will include: Immunotherapy for blood cancers and solid tumors; engineering immune cells and signaling molecules for immunotherapy; immunotherapy for neurodegenerative diseases. This seminar will also provide a forum for critical discussion of pressing challenges that confront the field, with an emphasis on the high cost and availability of these cutting-edge therapeutics. One three-hour seminar meeting per week. Fulfills the capstone requirement for the Health Studies minor.

LEARNING OUTCOMES

After this seminar you will be able to...

- Use immunotherapy as an inlet to understand the fundamental biology of the dynamic and remarkably adaptable human immune response.
- Find the leading edge of modern immunotherapy research and identify important unanswered questions in the field.
- Examine and synthesize immunotherapy research discoveries, describe these findings to your peers in the class, and lead a discussion about a topic related to immunotherapy of personal importance to you.
- Design your own novel immunotherapy and share your ideas in the form of graphical slides and a short oral pitch.

WHAT TO EXPECT DURING WEDNESDAY SEMINAR MEETINGS (Wed. 1:10 pm – 4 pm)

Class meetings will usually consist of interactive discussions about readings related to a current topic in immunotherapy interspersed by short interactive lectures. I anticipate and intentionally design my classrooms to be spaces driven by student curiosity and I find working with engaged and curious students incredibly invigorating. To support these efforts, I integrate time and space for student questions as well as informal problem-based learning exercises into all my classes. Most seminar meetings will contain two to three modular discussions or activities focused on the topics outlined on the course schedule. I do not presume prior knowledge of immunology or any other aspect of the life sciences.

COURSE ASSIGNMENTS

Course assignments and corresponding weights indicated below. Course graded out of 100 points. Weight and number of assignments subject to change if necessary.

Points for Key Pieces of Evaluated Work (100 points total for class)

Class Reflections (6 total; 5pts each lowest grade dropped).....	25 points (c)
Short Paper 1.....	15 points
Short Paper 2.....	15 points
Short Paper 3.....	15 points
Student-facilitated seminar meeting.....	20 points
Slide deck describing your novel immunotherapy.....	5 points
Pitch for your novel immunotherapy.....	5 points
(c) = graded on completion	

Previews of Significant Assignments (Full prompts will be available on the Moodle)**REFLECTIONS**

Six short informal in-class written reflections, graded on completion only, will occur throughout the semester to give you a chance to connect different readings and/or viewpoints you encounter throughout the semester. These assignments will occur in class and will take approximately 15 minutes to complete. The dates of reflections will not be announced in advance.

SHORT PAPERS

Short paper 1: A short structured paper (3-4 pages, double spaced) in response to a prompt which will be posted on the Moodle after seminar on 10/4. More details will be provided about this assignment in class on 10/4.

Short paper 2: A short structured paper (3-4 pages, double spaced) in response to a prompt which will be posted on the Moodle after seminar on 11/8. More details will be provided about this assignment in class on 11/8.

Short paper 3: A short structured paper (3-4 pages, double spaced) in response to a prompt which will be posted on the Moodle after seminar on 11/29. More details will be provided about this assignment in class on 11/29.

STUDENT-FACILITATED SEMINAR MEETING

After fall break each student will lead a discussion in class (~30min-1hour) about a topic related to immunotherapy of personal interest to the student. More details about this assignment will be discussed in class. Students will have an opportunity to select a topic from a menu of options or find their own topic in collaboration with the instructor.

SLIDE DECK ABOUT YOUR NOVEL IMMUNOTHERAPY

During the final two weeks of class, each student will design a novel immunotherapy based on the topics and resources selected in class. This assignment could involve a completely original idea or an in depth investigation of an existing candidate therapy with suggested “next steps.”

PITCH ABOUT YOUR NOVEL IMMUNOTHERAPY

The final class meeting will involve each student making their pitch about their own novel immunotherapy and a closing celebration.

ATTENDANCE POLICY

Your contributions to seminar are the backbone of our course so it is my expectation that you will attend every seminar meeting. Our classroom is not complete without you. If you anticipate missing a class meeting please contact me as soon in advance as possible.

COURSE POLICY REGARDING GENERATIVE AI

The central goal of this seminar is to give you an opportunity to develop your skills navigating and critically evaluating primary sources in the fields of science and medicine and distilling these complex concepts into clear and effective communication. One form of communication is written, but academic writing is not just about submitting a final piece of work; rather, it is a *process* that allows you to take what at first appears confusing and transform it into something that makes sense to you. Thus, writing is essential for learning. Emerging generative AI tools have potential to simultaneously support and undermine this process.

Short papers and seminar presentations: Original written work attributed to one or more identified human authors that properly cites prior scientific literature is the primary form of scholarship in the field of immunology. Over the course of the term, you will complete three short papers (dates below) focused on different seminar topics and lead a discussion in class about a topic of your choice chosen from a menu of options. You are welcome, but not required, to use sources beyond those assigned in class for paper research. The student-led discussion will require you to identify and find sources to assign as class readings related to a topic chosen from a menu of options. As students enrolled in a seminar course focused on immersing you in scholarship in this field, you will be responsible for anything you turn in under your own name. This includes inaccurate, biased, offensive, or otherwise unethical content.

You **may** use AI programs to help generate ideas, find topics that interest you, or identify relevant research materials *in the context of discovery*. You should, however, understand the material generated by these programs may be inaccurate, incomplete, or otherwise problematic.

You **may not submit any prose generated by an AI program as your own**. Because writing is learning, and the ability to integrate and communicate in writing is a central learning goal of this class, I ask that you do your own work on the short papers and putting together slideshow presentations for your student-led discussion and work designing your novel immunotherapy.

Please note that at the end of your short papers and slide show presentations I will ask you to disclose if any AI tool was used and, if so, to describe which tool you used and how you used it.

DUE DATES AND EXTENSIONS

Please submit your work on Moodle by the deadline to protect your time and allow me to provide actionable feedback in a timely manner. I will discuss extensions on a case-by-case basis.

ACCOMMODATIONS FOR RELIGIOUS OBSERVANCE

I understand religious observance is a meaningful part of many students' lives and occasionally requires that a student miss class or request an extension of a deadline. Please look over the course schedule posted on Moodle and contact me as soon as possible if you anticipate religious observance impacting your ability to attend seminar or turn in an assignment.

GRADES 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. Please see the list of assignments above to find the proper point values for each assignment.

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

ACCESS AND ACCOMMODATIONS

If you have any questions about access or accommodations, please contact me to schedule a time to discuss any concerns you might have confidentially. **Please note that this course does not require you to complete any graded quizzes or exams.**

Access Services (*italicized text 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 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.

Title IX concerns (*italicized text BMC Provost*)

Bryn Mawr/Haverford College is committed to fostering a safe and inclusive living and learning environment where all can feel secure and free from harassment. All forms of sexual misconduct, including sexual assault, sexual harassment, stalking, domestic violence, and dating violence are violations of Bryn Mawr/Haverford's policies, whether they occur on or off campus. Bryn Mawr/Haverford faculty are committed to helping to create a safe learning environment for all students

and for the College community as a whole. If you have experienced any form of gender or sex-based discrimination, harassment, or violence, know that help and support are available. Staff members are trained to support students in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more.

The College strongly encourages all students to report any incidents of sexual misconduct. Please be aware that all Bryn Mawr/Haverford employees (other than those designated as confidential resources such as counselors, clergy, and healthcare providers) are required to report information about such discrimination and harassment to the [Bi-College Title IX Coordinator](#).

Course Schedule: Health Studies Senior Seminar - Immunotherapy
(Subject to Change if Necessary)

Week	Date	Seminar Topic	Readings/Preparation (to be completed prior to class)	Assignment (due date)
1	9/6	Fundamentals of human immunology	None	
2	9/13	Cells and cellular diversity	1. Immune System BioInteractive 2. Song of the Cell (pp. 19-147)	
3	9/20	The dynamic immune response	1. Grant et al (2020) – LN at a glance 2. Song of the cell (pp. 151-242)	
4	9/27	Tolerance and autoimmunity	1. Song of the Cell (pp. 245-312) 2. Bluestone & Anderson (2020)	
5	10/4	Immune checkpoints and checkpoint blockade	1. Allison Nobel Prize Lecture (2018) 2. Leach et al (1996)	Short Paper 1 (Due Sun 11/5, 11:59 pm)
6	10/11	CAR-T & CAR-P	1. Song of the Cell (pp. 315-368) 2. Lim and June (2017)	
7	<i>Fall break (take a break!)</i>			
8	10/25	Immunotherapies for neurodegenerative diseases	1. Ransohoff (2016) 2. "Blots on a field?" (2022)	
9	11/1	Immune archetypes & regulatory T cells	1. Mujal and Krummel (2019)	
10	11/8	Student-led discussions: Immunotherapy for infectious diseases/microbiome	<i>Student selected readings</i>	Short Paper 2 (Due F 12/1, 11:59pm)
11	11/15	Student led discussions: Barriers to accessing cutting-edge immunotherapies	<i>Student selected readings</i>	
12	11/22	No class – Thanksgiving break	None	
13	11/29	Gene editing & immunotherapy	TBD	Short paper 3 (Due Th 12/13, 11:59pm)
14	12/6	Workshop: design a novel immunotherapy	No reading assigned – research related to your novel immunotherapy	Novel immunotherapy slide deck (M 12/11, 5pm)
15	12/13	Mock pitch meetings & closing reception	No reading assigned (practice pitch)	