

**Course Syllabus**  
**Biology 373: Senior Seminar on**  
**Immunology and Host-Pathogen Interactions**  
**Spring Semester 2016, Moravian College**

Professor's Contact Information:

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Office hours: Mon/Wed 10:15-11:15am and  
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Class Information:

Lecture meets: Tues/Thurs 8:55am-10:05am,  
123 Collier Hall of Science  
Dates: January 18<sup>th</sup> – April 30<sup>th</sup>, 2016  
Credit hours: 1

**Course Catalog Description:** This is a writing intensive course focused on the immune system, the immunological basis of disease, and host-pathogen interactions. Emphasis will be placed on reading and discussing peer-reviewed literature including research articles and reviews as well as practice with numerous types of scientific writing. The major projects in this course will be two papers and two oral presentations. Broader themes include innate/adaptive immunity, intracellular pathogens, microbial pathogenesis, immune evasion, and immune tolerance. Prerequisite: Junior or Senior standing.

**Major Course Goals**

1. Integrate themes of microbiology and immunology to read, discuss, and write about a variety of host-pathogen interactions that affect health and disease in humans
2. Use reading and writing as a means to learn the latest scientific knowledge in this discipline
3. Demonstrate an ability to write for scientific and public audiences (and change style and tone between audiences)
4. Analyze the format and expectations for different types of scientific writing and adapt your writing to these expectations
5. Dissect, evaluate, critique, and summarize a peer-reviewed journal article
6. Seek out credible primary and secondary sources and write a literature review on a relevant topic
7. Revise a piece of writing based on peer-review comments
8. Peer-review someone else's writing, giving valuable, substantial feedback

9. Instill confidence in reading and understanding research articles outside of your area of expertise
10. Hone professional presentation skills to engage the audience, teach subject matter, and pique interest in a topic

## Course Textbooks

**Recommended** Kuby Immunology (7<sup>th</sup> ed) by Owen, Punt, and Stranford  
**Or** a different immunology textbook as a reference

## Grades

I do not *give* grades for this class, *you earn them*. Your grade will be determined from the total number of points you earn throughout the semester. Below is a list of anticipated assignments and evaluations for this semester, though the instructor reserves the right to make changes to assignments and point totals:

Types of Evaluation	Total Points
Written papers	2 @100 pts each
Oral presentations	2 @100 pts each
Effort and quality of peer editing	100
Misc. writing assignments (abstracts, summaries, cover letter, resume, etc.)	100-200
Attendance, substantial active participation, and preparation for class (readings, assignments, etc)	100

## Standard Grading Scale

A letter grade will be assigned based on the following final percentage of points earned:

(100 - 93.3%) = A (Outstanding)  
 (93.2-90.0%) = A-  
 (89.9-86.7%) = B+  
 (86.6-83.3%) = B (Above Average)  
 (83.2-80.0%) = B-  
 (79.9-76.7%) = C+  
 (76.6-73.3%) = C (Satisfactory)  
 (73.2-70.0%) = C-  
 (69.9- 66.7%) = D+  
 (66.6-63.3%) = D (Below Average)  
 (63.2-60.0%) = D-  
 (59.9% or below) = F (Failing)

Students are responsible for keeping track of their grades. If you need to dispute a grade on an assignment or evaluation, you will have exactly 1 week in which to do so (from when the grade is listed on blackboard). Only a final course grade ending in 0.50 - 0.99% will be rounded-up to the next whole number.

### **Blackboard Course Website:**

After you have enrolled in our blackboard course, login to Blackboard <https://blackboard.moravian.edu> to access our course shell. This site will contain updates and announcements, assignment guidelines, rubrics, and drop boxes for assignments. I will communicate frequently through Blackboard, so please check the announcements page (and your email) frequently.

### **Papers and Presentations**

You will conduct a literature review on two distinct topics of your choosing related to immunology and host-pathogen interactions. These topics must be substantially different from each other. For one of the papers you must extend the known knowledge in the field by contributing some original analysis of the topic (synthesis, speculation, reaction, future directions, etc.). There will be two, ungraded drafts due before the final draft. You will work in groups of 4 to peer-edit each other's first draft (2000 word minimum). The instructor will give revisions for the second draft (2500 word minimum). Your final paper will have a minimum of 3000 words. Students will teach the class about each of their topics in two separate oral presentations. Specific guidelines and grading rubrics will be handed out after the first week of class.

### **Current Event Reactions**

You will be required to write about current events in immunology and host pathogen interactions (5 throughout the semester). Instructions are simple: read any science **news article** and then 1) in a few sentences summarize their major findings and the significance of their findings, 2) judge the credibility of the news article you read as well as the original primary article (consider authors and/or their institutions, peer-reviewed or not), 3) give your reaction to the information presented, and 4) write 2 additional questions that this article raised. Each current event reaction should be **at least** ½ page. These can be turned in at any point during the semester, but **MUST** be turned in before the date listed on the schedule.

### **Tips for Success in this Course**

- 1) You get out what you put in! We will live and die (so to speak) by everyone's willingness to participate and join the discussion
- 2) There are numerous ungraded drafts in this course to allow you more experience with exploratory writing/making mistakes without penalty
- 3) Take advantage of the writing center, career center, etc.

- 4) Take advantage of peer-editing as an opportunity to learn by example of the do's and don'ts of writing a review paper. Peer-editing, when done correctly, is a valuable learning tool.
- 5) Keep track of deadlines and don't procrastinate!

### **Other course policies:**

**Attendance:** Since this is largely a discussion- and presentation-based course, you are expected to attend and actively participate in every class. Asking questions and starting dialogue/discussions isn't only encouraged, it's expected. You will lose points for absences.

**Plagiarism:** Using someone else's words, ideas, or images and calling them your own, is academic fraud! You may NEVER use material (words, ideas, images) created by someone else and hand it in as your own work — even if they give you their permission. All work for this class must be YOUR ORIGINAL work. DON'T TRY TO FIND LOOPHOLES OR SHORTCUTS. **If you are caught plagiarizing, you may fail the assignment and/or the course, at the discretion of the instructor and department chair. In addition you will receive academic sanctions that will affect your grade and non-academic sanctions as a violation of the academic honesty policy in the student handbook. For more information on Moravian's academic honesty policy, please visit the student handbook at:**

<http://www.moravian.edu/studentLife/handbook/academic/academic2.html>

**Be courteous to peers and give constructive criticism during peer-editing:** We'll be doing quite a bit of peer editing in class. Rudeness is unacceptable in this class and will not be tolerated. I will frequently post examples of writing so that we can discuss their qualities, both good and bad. The examples I post will likely be anonymous snippets of your classmates' work and as such should not be critiqued with harsh language. The proverbial "compliment sandwich" works best for constructive criticism.

**Be Responsible for your Success** - It is YOUR responsibility to make sure that you are consistently checking Blackboard for announcements, completing assignments on time, and adhering to the deadlines for the major course projects. Keep in mind that the course projects (papers and presentations) will take a major time commitment from you. Do not procrastinate.

**Disabilities Policy**

Students who wish to request accommodations in this class for a disability should contact the Academic Support Center, located in the lower level of Monocacy Hall, or by calling [610-861-1401](tel:610-861-1401). Accommodations cannot be provided until authorization is received from the Academic Support Center.

**Need a Tutor?**

The Academic Support Center houses Disability Support and Greyhound Tutoring on the first floor of Monocacy Hall and can be reached at [610-861-1401](tel:610-861-1401).

Greyhound Tutoring provides course-specific tutors to Moravian students, free of charge. If you would like to work with a Greyhound Tutor to boost your academic success, please request a tutor through <http://bit.ly/NeedTutorMC> (case-sensitive). Plan ahead! It takes 2-3 business days to connect you with a tutor.

Please email Dana Wilson ([wilsond@moravian.edu](mailto:wilsond@moravian.edu)), Tutor Coordinator, for more information about tutoring. Please email Laurie Roth ([rothl@moravian.edu](mailto:rothl@moravian.edu)), Director of Academic and Disability Support, for more information about disability support.

**\*\*Your instructor reserves the right to modify the syllabus, course policies, schedule, and/or assignments and point values at any time during the semester and will notify students of any changes that take place.**

Helpful websites for topics/news:

<http://www.sciencedaily.com/>

Great news articles

<http://www.sciencemag.org/news>

News from the journal Science

[www.aaaai.org](http://www.aaaai.org)

American Academy of Allergy Asthma and Immunology

[www.aai.org](http://www.aai.org)

American Association of Immunologists

[www.ncbi.nlm.nih.gov/pubmed/](http://www.ncbi.nlm.nih.gov/pubmed/)

Pubmed

<http://www.scientificamerican.com/>

Scientific American

<http://www.the-scientist.com/>

The Scientist Magazine

<https://www.sciencenews.org/>

Science news magazine of The Society for Science and the Public

<http://www.biotechniques.com/news/>

News from Biotechniques: The international journal of life science methods

Selected sample topics for paper topics (there are tons more):

The causes, consequences, and treatments for persister cell formation during disease

Using viruses to kill cancer, risks, benefits, etc.

Gut microbes: distinguishing friend from foe, early development of immune system in gut, gut diseases linked to disrupted flora, role of gut microbe balance in diabetes

First 100 days of life: how the microbiota can be permanently altered for good and bad

Troubles and progress with creating a pan-influenza vaccine (or any vaccine that hasn't yet been created—infectious agent or cancer, etc.)

Relationship and balance between virulence and transmission

Strategies of intracellular bacteria to survive inside macrophages

Strategies of quorum sensing in pathogenesis of disease

Pathogenesis and intracellular lifestyle of *Listeria monocytogenes* (or any intracellular bacterium)

How does *Mycobacterium tuberculosis* evade the immune system

Use of bacteriophage as a treatment for bacterial infections

Effects of antioxidants on macrophage killing

Significance of host death (apoptosis, pyroptosis, necrosis, oncosis, autophagy) in bacterial infection

Reversal of/treatments for allergies

How aging affects the immune system

Progress of cancer vaccines

Immune evasion of Epstein Barr virus, *Toxoplasma gondii* to cause chronic infections that may or may not progress to disease

Tentative Schedule		
Class Date	Class Topics	Items Due on this Day
January 19	Introductions, syllabus and schedule, sample topics for review papers	
January 21	How to read primary literature	Read Section 1 pgs 1-3, Section 3 pgs 7-15, Section 4 pgs 15-20, Section 5 pgs 20-29
January 26	Continued (how to read primary literature)	Topics due for both papers, Introduction activity due, Read Sections 6 and 7 pgs 29-41
January 28	Continued (how to read primary literature) if necessary, dissecting a review paper	M&M activity due, read assigned review article
February 2	Scientific databases and citations with Kim Demyan, Reeves Library	Read Section 2 pgs 3-7, Outline due for paper 1
February 4	Career Center Activity	
February 9	Follow-up to Career Center Activity	
February 11	article dissection	
February 16	Different ways to read papers, tone, audience	
February 18	How to create a good presentation, developing a rubric for evaluation	1st draft for paper 1, peer-review/editing
February 23	peer editing of review papers	Peer-review/editing
February 25	peer editing of review papers	Outline due for paper 2
March 1	Oral presentations 1-3	Write abstract for paper you peer-edited
March 3	Oral Presentations 4-6	2nd draft of paper 1
March 8	<b>SPRING BREAK NO CLASS</b>	
March 10	<b>SPRING BREAK NO CLASS</b>	
March 15	Oral Presentations 7-9	1st draft for paper 2
March 17	peer editing of review papers	peer editing/review
March 22	peer editing of review papers	peer editing/review
March 24	Oral Presentations 10-12	
March 29	Oral Presentations 13-15	2nd draft of paper 2
March 31	Oral Presentations 16 and 17, catch-up	Final draft of paper 1 due
April 5	Oral Presentations 1-3	
April 7	Oral Presentations 4-6	All current event reactions are due
April 12	Oral Presentations 7-9	
April 14	Oral Presentations 10-12	



April 19	Oral Presentations 13-15	Final draft of paper 2 due
April 21	Oral Presentations 16 and 17	
April 26	Catch-up or TBD	
April 28	Wrap up, discussion	