

IMPORTANT: This syllabus form should be submitted to OAA (gsbs_academic_affairs@uth.tmc.edu) a week before the start of each semester.

NOTE to STUDENTS: If you need any accommodations related to attending/enrolling in this course, please contact one of the Graduate School's 504 Coordinators, Cheryl Spitzenberger or Natalie Sirisaengtaksin. We ask that you notify GSBS in advance (preferably at least 3 days before the start of the semester) so we can make appropriate arrangements.

<p>Term and Year: Fall 2023</p> <p>Course Number and Course Title: GS07 1092 Topics in Microbiology and Infectious Diseases Credit Hours: 2</p> <p>Meeting Location: UTH McGovern Medical School</p> <p>Building/Room#: MSB 1.180</p> <p>WebEx/Zoom Link:</p>	<p>Program Required Course: Yes No</p> <p>Approval Code: Yes No (If yes, the Course Director or the Course Designee will provide the approval code.)</p> <p>Audit Permitted: Yes No</p> <p>Classes Begin: August 28</p> <p>Classes End: December 15</p> <p>Final Exam Week: December 11 - 15</p>						
<p>Class Meeting Schedule</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 50%;">Day</th> <th style="width: 50%;">Time</th> </tr> </thead> <tbody> <tr> <td>Tuesday</td> <td>2-3PM</td> </tr> <tr> <td>Thursday</td> <td>2-3PM</td> </tr> </tbody> </table>		Day	Time	Tuesday	2-3PM	Thursday	2-3PM
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<p>Course Director</p> <p>Name and Degree: Jayhun Lee, Ph.D Title: Assistant Professor Department: Microbiology and Molecular Genetics Institution: UTH MDACC Email Address: Jayhun.Lee@uth.tmc.edu Contact Number: 713-500-5462</p> <p>Course Co-Director/s: (if any) Name and Degree: Title: Department: Institution: UTH MDACC Email Address:</p>	<p>Instructor/s (Use additional page as needed)</p> <p>1. Name and Degree: Danielle A. Garsin, Ph.D. Institution: UTH Email Address : Danielle.A.Garsin@uth.tmc.edu</p> <p>2. Name and Degree: Bo Hu, Ph.D. Institution: UTH Email Address : Bo.Hu@uth.tmc.edu</p> <p>3. Name and Degree: Heidi B. Kaplan, Ph.D. Institution: UTH Email Address: Heidi.B.Kaplan@uth.tmc.edu</p>						

<p>Contact Number:</p> <p>NOTE: Office hours are available by request. Please email me to arrange a time to meet.</p> <p>Teaching Assistant: (if any)</p> <p>Name and Email Address</p> <p>Name and Email Address</p>	<p>4. Name and Degree: J. Christian Perez, Ph.D. Institution: UTH Email Address: jose.c.perez@uth.tmc.edu</p> <p>5. Name and Degree: Jyotika Sharma, M.Phil., Ph.D. Institution: MDACC Email Address: jsharma1@mdanderson.org</p>
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Course Description:

This course offers an overview of latest research on selected topics in microbiology and infectious diseases, and a curriculum that helps students acquire ability to critically review research and develop a research program.

The course primarily consists of student presentations and discussion of recent scientific articles. The list of articles for each session will be provided in advance. Students will also be required to develop and write a full NIH style grant proposal. This course fulfills the GSBS Scientific Writing requirement.

Textbook/Supplemental Reading Materials (if any)

- Primary scientific literature (recent research articles) will be assigned for discussions.

Course Objective/s:

Upon successful completion of this course, students will be able to (i) critically evaluate primary literature pertaining to a range of topics reflecting the breadth of microbiology and infectious diseases, (ii) formulate testable research hypotheses, and (iii) propose incisive experimental strategies to test their hypotheses.

Specific Learning Objectives:

1. Learn to critically evaluate primary literature in the field of microbiology and infectious diseases.
2. Gain enough understanding of a specific subject to be able to formulate and test a sound hypothesis.
3. Devise experimental strategies and develop specific aims to test a research hypothesis.
4. Acquire grant writing skills.

Student Responsibilities and Expectations:

There are two main components of the course: literature discussion and grant writing. The literature discussion component accounts for 50% of the grade. Students will be assigned research articles to critically read and analyze. Typically one or two students will be assigned to lead the discussion of each paper in class. The discussion leader(s) will be expected to introduce the background of the paper and

steer the discussion but all students are expected to be capable of discussing all parts of the paper. Students will:

- 1) Critically read every week 1-2 research articles (primary literature) which will be assigned in advance by the instructors.
- 2) Attend and participate in every session.

The grant writing component accounts for the other 50% of the grade. Students will first choose a research topic distinct from their own thesis topic along with a faculty mentor among the 6 faculty members involved in the course. Students will:

- 1) Pick a research topic and advisor (due Sept 7th 2023)
- 2) Write a draft of specific aims (due Sept 21st 2023): the draft should be one page long and include sub-aims. You must meet with your faculty mentor to discuss the draft. Examples of specific aims will be made available to you.
- 3) Prepare a PowerPoint aims presentation (deliver on Oct 3rd 2023): The presentation should give a brief introduction to your topic and outline aims/subaims with details of methods/techniques to be used. Presentations will be informal discussions between students and faculty and should help you formulate an experimental plan. Plan for 10-12 minutes of presentation followed by 10-15 minutes of feedback. Since there are three student participants, please expect that the class might go over an hour and leave an extra 30 minutes to your schedule.
- 4) Revise the specific aims and write a 6-page grant proposal in the format of an NIH R21 or F31 grant proposal (grant due Oct 31st 2023). You must meet with your faculty mentor to discuss the revised specific aims and experimental plan following the presentations. Examples of funded grant proposals will be made available to you.
- 5) Receive written critiques after the grant has been reviewed by several faculties. You will submit revised grant proposal based on the critiques, along with a one-page Introduction addressing the critiques directly (revised grant due Dec 7th 2023). The revised proposal will be discussed by faculty in the "study section". You will receive another written critique that will form the basis for your final assessment.

Students are expected to complete all assigned reading material prior to class. While you may work and discuss all course materials in groups, all writing assignments must be your own. Plagiarism and failure to properly cite scientific literature and other sources will not be tolerated and are grounds for dismissal from the course and further GSBS disciplinary action. Engaging in unethical behavior during discussions and presentations will be grounds for dismissal from the course without credit and further GSBS disciplinary action.

As indicated in the class schedule, there is no paper assignment for several classes. Students are nonetheless expected to attend all of these classes including the aims presentation.

Grading System: Letter Grade (A-F) Pass/Fail

Student Assessment and Grading Criteria : (May include the following:)

Percentage	Description
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Homework (25 %)	Weekly reading of assigned literature.
Quiz (%)	
Presentation (15 %)	Specific aims presentation
Midterm Exams (15 %)	Research grant proposal
Final Exam (20 %)	Revised research grant proposal
Workshop or Breakout-Session (%)	
Participation and/or Attendance (25 %)	Participation in discussion of assigned literature

CLASS SCHEDULE

DAY	DATE	ASSIGNMENT DUE	LECTURE TOPIC	INSTRUCTOR	NOTE
TUES	8/29/23		How to write a grant - Part I	GARSIN	No paper assigned
THURS	8/31/23		How to write a grant - Part II	GARSIN	No paper assigned
TUES	9/5/23		Functional genomics of host-parasite interaction	LEE	
THURS	9/7/23	Pick research topic and advisor	Functional genomics of host-parasite interaction	LEE	
TUES	9/12/23		Functional genomics of host-parasite interaction	LEE	
THURS	9/14/23		Functional genomics of host-parasite interaction	LEE	
TUES	9/19/23		Cell-cell interactions and signal transduction	KAPLAN	
THURS	9/21/23	Specific Aims page due	Cell-cell interactions and signal transduction	KAPLAN	
TUES	9/26/23		Cell-cell interactions and signal transduction	KAPLAN	
THURS	9/28/23		Cell-cell interactions and signal transduction	KAPLAN	

TUES	10/3/23	STUDENT PRESENTATIONS (<u>EXPECT 1.5hrs</u>)		ALL	No paper assigned
THURS	10/5/23	No class			No paper assigned
TUES	10/10/23		Structural basis for antibiotic resistance of bacteria	HU	
THURS	10/12/23		Structural basis for antibiotic resistance of bacteria	HU	
TUES	10/17/23		Structural basis for antibiotic resistance of bacteria	HU	
THURS	10/19/23		Structural basis for antibiotic resistance of bacteria	HU	
TUES	10/24/23		Microbiome-host interactions	PEREZ	
THURS	10/26/23		Microbiome-host interactions	PEREZ	
TUES	10/31/23	Research proposal due	No class		
THURS	11/2/23		Microbiome-host interactions	PEREZ	
TUES	11/7/23	Critiques handed back to students	Microbiome-host interactions	PEREZ	
THURS	11/9/23		HOW TO RESPOND TO CRITIQUES	GARSIN	No paper assigned
TUES	11/14/23		Neutrophils: Cinderella of immune responses	SHARMA	
THURS	11/16/23		Neutrophils: Cinderella of immune responses	SHARMA	
TUES	11/21/23	Thanksgiving week – no class			
THURS	11/23/23	Thanksgiving week – no class			
TUES	11/28/23		Neutrophils: Cinderella of immune responses	SHARMA	
THURS	11/30/23		Neutrophils: Cinderella of immune responses	SHARMA	
TUES	12/5/23	No class			
THURS	12/7/23	Revised research proposal due	No class		
THURS	12/14/23	Faculty Study Section		ALL	