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 the Graduate School's 504 Coordinator, Natalie Sirisaengtaksin, PhD. 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.

Term and Year: **Fall 2025** Course Number and Course Title: **GS07 1092: Topics in Microbiology and Infectious Diseases** **Credit Hours: 2** Prerequisites: **Previous coursework in molecular microbiology, or permission of the course director** Meeting Location: **UTH McGovern Medical School** Building/Room#: **MSB 1.180**	**Program Required Course: Yes** **Approval Code: Yes** **(If yes,** the Course Director or the Course Designee will provide the approval code.) **Audit Permitted: No** **Classes Begin: August 25, 2025** **Classes End: December 5, 2025** **Final Exam Week: December 8-12, 2025**

Class Meeting Schedule

Day	Time
Tuesday and Thursday	**2 – 3 PM**

Course Director Name and Degree: **Jayhun Lee, PhD** Title: Assistant Professor Department: Microbiology and Molecular Genetics Institution: **UTHH** Email Address: Jayhun.Lee@uth.tmc.edu Contact Number: 713-500-5462 **NOTE:** Office hours are available by request. Please email me to arrange a time to meet. **Teaching Assistant**: **N/A** Name and Email Address	**Instructor/s** 1. **Danielle A. Garsin, PhD** Institution: UTHH Email Address: Danielle.A.Garsin@uth.tmc.edu 2. **Jyotika Sharma, PhD** Institution: MDACC Email Address: jsharma1@mdanderson.org 3. **Anne-Marie Krachler, PhD** Institution: UTHH Email Add: Anne.Marie.Krachler@uth.tmc.edu 4. **William Margolin, PhD** Name and Degree: Institution: UTHH Email Address: William.Margolin@uth.tmc.edu

	5. **Ziyin Li, PhD** Institution: UTHH Email Address: Ziyin.Li@uth.tmc.edu 6. **Diana M. Proctor, PhD** Institution: UTHH Email Address: Diana.M.Proctor@uth.tmc.edu 7. **Raquel Salinas, PhD** Institution: UTHH Email Address: Raquel.Y.Salinas@uth.tmc.edu

Course Description:

This course offers an overview of the 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

- 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 40% of the grade. Students will be assigned research articles to

critically read and analyze. The discussion format is entirely up to the instructor, which will be announced 1-2 weeks prior to the class. 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 60% 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 a mentor and meet with the mentor periodically on the assigned dates to discuss all aspects of proposal development. The meetings are expected to take place during the normal scheduled class hours (2-3PM Tuesday or Thursday). However, if the faculty mentor has a scheduling conflict that day and time, they will reach out to you directly to reschedule the meeting. The mentor-mentee meetings are required and will be graded based on the faculty mentor's input on the mentee's progress and preparedness for the discussion.
2) Write a draft of specific aims: 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) Give an oral presentation of the aims and the outlines of the approach: The presentation should give a brief introduction to your topic and outline aims/sub aims 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. 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. 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. 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)**

Student Assessment and Grading Criteria: *(May include the following:)*	
Percentage	**Description**
Homework (20%)	Weekly reading of assigned literature.
Presentation (15 %)	Specific aims presentation
Midterm Exams (15 %)	Research grant proposal
Final Exam (20 %)	Revised research grant proposal
Workshop or Breakout-Session (10%)	Turning in writing assignments, participation and discussion in mentor-mentee meetings
Participation and/or Attendance (20%)	Participation in discussion of assigned literature

CLASS SCHEDULE

Date	Day	Assignments / Milestones	Lecture / Meeting Topic	Instructors	Note
8/26/25	TUES	• Identify an area of interest (cannot be related to your research project or candidacy exam topic) • Brainstorm proposal topic and aims • Contact and set up a mentor	How to write a grant – Part 1	GARSIN	GARSIN lecture material upload a week before class starts
8/28/25 **ALTERNATE TIME (12:30 – 1:30PM)**	THURS		How to write a grant – Part 2	GARSIN	SHARMA lecture material upload
9/2/25	TUES		Mentor-Mentee Meeting 1: Brainstorm ideas for a proposal topic	ALL	
9/4/25	THURS	• Read relevant papers • Narrow down the research topic and aims idea • Develop Specific Aims	Topic 1: Neutrophils: Cinderella of immune responses 1	SHARMA	
9/9/25	TUES		Topic 1: Neutrophils: Cinderella of immune responses 2	SHARMA	
9/11/25	THURS	• Turn in a **working draft** of the Specific Aims page to your mentor	Topic 1: Neutrophils: Cinderella of immune responses 3	SHARMA	KRACHLER Lecture material upload

9/16/25	TUES	• Mentors provide feedback prior to or during the meeting	Mentor-Mentee **Meeting 2**: Discuss Specific Aims page	ALL	
9/18/25	THURS	• Revise Specific Aims and prepare for presentation	Topic 2: Inter-species interactions 1	KRACHLER	
9/23/25	TUES		Topic 2: Inter-species interactions 2	KRACHLER	
9/25/25	THURS		Topic 2: Inter-species interactions 3	KRACHLER	
9/30/25	TUES	• Present background, significance, rationale, hypothesis, aims, and brief description of approach (10min talk + 10min Q&A)	Specific Aims Presentation 1	ALL	Plan ~1.5 hours for each class MARGOLIN lecture material upload by 10/2
10/2/25	THURS		Specific Aims Presentation 2	ALL	
10/7/25	TUES	• Revise and refine the scope and aims	Mentor-Mentee **Meeting 3**: Post-presentation discussion	ALL	
10/9/25	THURS	• Write the proposal	Topic 3: Bacterial cell biology 1	MARGOLIN	
10/14/25	TUES		Topic 3: Bacterial cell biology 2	MARGOLIN	LI lecture material upload
10/16/25	THURS		Topic 3: Bacterial cell biology 3	MARGOLIN	
10/21/25	TUES		Topic 4: Molecular mechanisms of host-parasite interactions 1	LI	
10/24/25	THURS		Topic 4: Molecular mechanisms of host-parasite interactions 2	LI	
10/28/25	TUES	• Turn in a **working draft proposal** (Specific Aim + Research Strategy) to your mentor (does not have to be complete)	Topic 4: Molecular mechanisms of host-parasite interactions 3	LI	
10/30/25	THURS	• Mentors return the comments	Mentor-Mentee **Meeting 4**: Draft proposal discussion	ALL	
11/4/25	TUES	• Turn in a **full research proposal** to the Course Director	No Class		Election Day
11/6/25	THURS	• Proposal reviewed by three or more reviewers	Overview of NIH F Fellowship and Changes to Application and Review Process	SALINAS	
11/11/25	TUES	• Critiques returned to students and mentors	How to write a grant – Part 3 (How to respond to critiques)	GARSIN	Veterans Day PROCTOR lecture material upload

11/13/25	THURS	• Formulate a revision strategy and discuss the plans with your mentor	Mentor-Mentee **Meeting 5**: Discussion of critiques and revision plans	ALL	
11/18/25	TUES	• Work on revision and introduction	Topic 5: Genomic epidemiology of emerging fungal pathogens 1	PROCTOR	
11/20/25	THURS	• Turn in the **revision draft** (Introduction + Proposal) to the mentor	Topic 5: Genomic epidemiology of emerging fungal pathogens 2	PROCTOR	
11/25/25	TUES	• Mentors return feedback	No Class		Thanksgiving Break
11/27/25	THURS	No Class			Thanksgiving Break
12/2/25	TUES	• Turn in the **final revised proposal** to the Course Director (must include the Introduction page)	Topic 5: Genomic epidemiology of emerging fungal pathogens 3	PROCTOR	
12/4/25	THURS	• Revised proposal reviewed by 3-4 reviewers	Floating (F31 awardee interview, tentative)		Last Day of Class
12/9/25	TUES	Faculty Study Section (2-3PM, MSB Library)			
12/11/25	THURS	Critiques handed back to students, Re-revise if necessary			

JL/jal-08.21.25