Gerstner Sloan Kettering
Graduate School of Biomedical Sciences

First Year

Fall Semester

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
	Rotation 1				Winter Break
Orientation/ Onboarding	**Lab** 5 weeks	**Experimental Biology** 5 weeks		**Mechanistic Biology I** 10 weeks	

Spring Semester

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Rotation 2		Spring Break			Rotation 3
Lab 5 weeks	**Mechanistic Biology II** 5 weeks		**Cancer Biology** 10 weeks		**Lab** 5 weeks

Laboratory Rotations. All students enter our PhD program without a formal commitment to a particular laboratory. They have the opportunity to rotate in, or try out, three different laboratories in their first year. Each rotation lasts for 5 weeks. The first begins in July after students arrive on campus and is organized in advance in consultation with the dean. The second occurs in January, and the third in June. Students may complete all three rotations prior to joining a lab, or they can decide to join a lab in February after the second rotation. Our rotations are offset from classes so that students can concentrate on their research when they are in lab, and then they can focus on coursework when they are in class.

Coursework. Our students take formal classes *only* during their first year of graduate school. They take one “core” course all together. Through this course they learn how to read, understand, and discuss science, and they learn how to *do* cutting edge research. The course has 4 sections: Experimental Biology, Mechanistic Biology I and II, and Cancer Biology.

Experimental Biology teaches conceptual and practical aspects of five different research disciplines: *imaging, genetics, biochemistry, genomics,* and *quantitative biology*.

Each topic is considered for one week through a combination of workshops, research paper discussions, and lectures. Questions that are considered include:

How is imaging performed at different length scales, and what can be learned through different techniques?

How have imaging technologies pushed the boundaries of knowledge?

How are genetic principles and applied technologies used to make new discoveries?

What techniques allow for the experimental manipulation of DNA, RNA, and protein, and how do they work?

How do the “kits” on my research bench actually work?

How can I think quantitatively about different approaches and data sets?

Mechanistic Biology I and II teach what is understood about how cells are constructed and maintained, how groups of cells collaborate to achieve normal development, and how the immune system works. In this class a research paper is dissected every day with one of our GSK faculty members who is at the cutting edge of their research field.

Over 15 weeks the class will consider:

Genome biology, gene expression, and proteins

Cellular architecture: from the cytoskeleton to organelles

Cell cycle control, cell division, and cell death

Cell signaling

Stem cells and pluripotency

Tissue and organismal development

Innate and adaptive immunity

Cancer Biology teaches how to think about cancer as a disease and also as a biological problem. This course leverages the world-class research and clinical expertise at Memorial Sloan Kettering. The course lasts for 10 weeks and considers both the biology of cancer and also clinical approaches to combatting this disease.

Ten different, week-long topics are considered, including:

Cancer as a disease

Genetic and epigenetic mechanisms

Computational biology and oncology

Cancer signaling

Cancer metabolism

Metastasis

Tumor modeling and heterogeneity

Cancer types and microenvironments

Therapeutic strategies

Immunotherapeutic approaches

First Year Core Course Curriculum

2023-2024 Academic Calendar

2023

Monday, July 24 – Friday, July 28	Orientation Week
Monday, July 31 – Friday, September 1	Laboratory Rotation #1
Wed., August 2 – Wed., August 30	Logical & Critical Analysis
Monday, August 21	PyMol training
Thursday, August 31	Rotation Symposium #1
Monday, September 4	Labor Day Holiday
Tuesday, September 5	Section I Experimental Biology Begins
Monday, October 9	Columbus Day/Indigenous People’s Day Holiday
Tuesday, October 10	Section II Mechanistic Biology I Begins
Wednesday, Nov 22 – Friday, Nov 24	Thanksgiving Holiday
Friday, December 15	Last Day of Fall Semester Classes
Saturday, December 16 – Mon., January 1	Winter Break

2024

Tuesday, January 2 – Fri., February 2	Laboratory Rotation #2
Monday, January 15	Martin Luther King, Jr. Holiday
Thursday, February 1	Rotation Symposium #2
Monday, February 5	Section III Mechanistic Biology II Begins
Monday, February 19	Presidents' Day Holiday
Sat., March 9 – Sun., March 17	Spring Break
Monday, March 18	Section IV Cancer Biology Begins
Wednesday, May 15	Commencement
Friday, May 24	Last Day of Core Course
Monday, May 27	Memorial Day Holiday
Tuesday, May 28 – Friday, June 28	Laboratory Rotation #3
Thursday, June 27	Rotation Symposium #3
Monday, July 1	Begin Full-Time Thesis Work
Thursday, July 4	Independence Day Holiday

GSK reserves the right to change this schedule. All students and faculty will be notified of such changes prior to their effective dates..

PREVIOUS
Overview

NEXT
Second Year & Beyond
