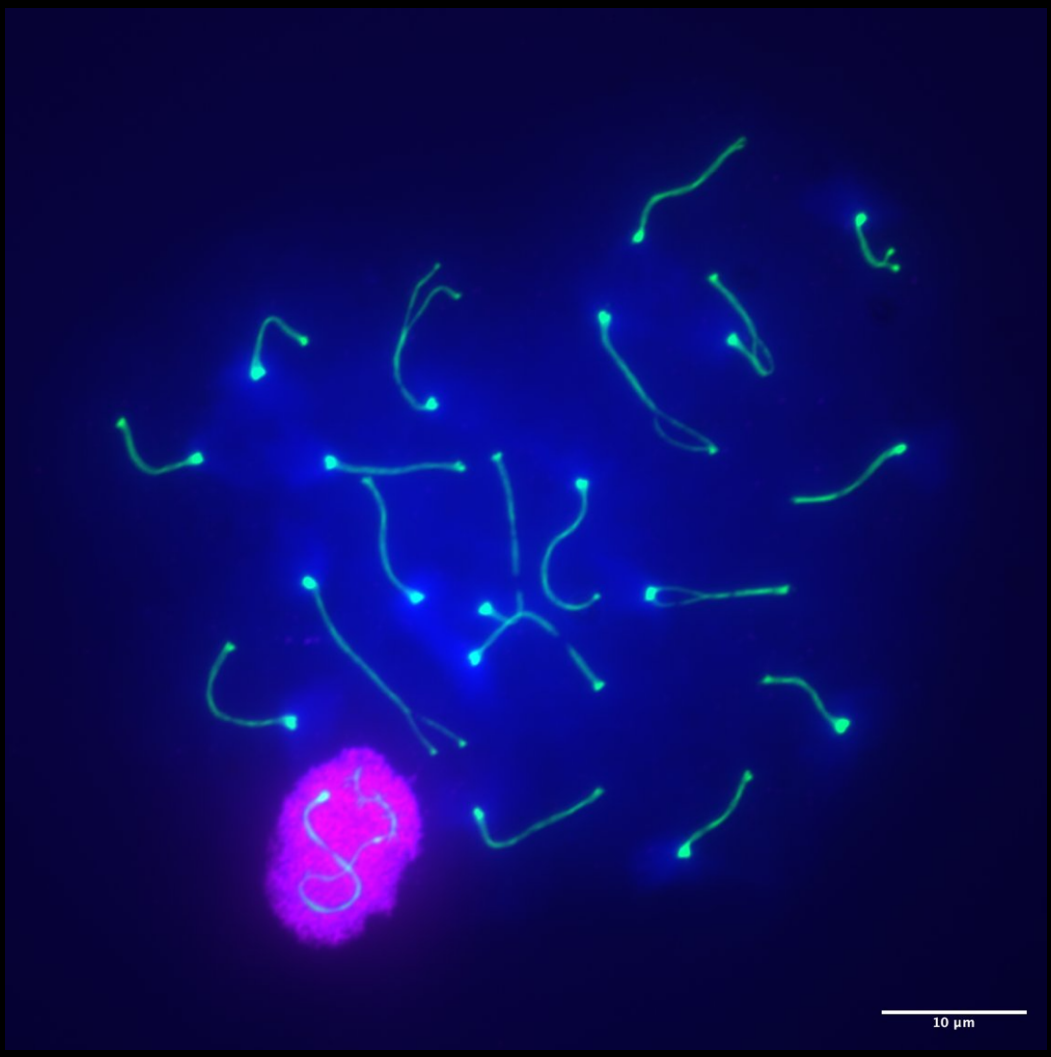
2025-2026 BCMB
Program Handbook



This immunofluorescence image shows a diplotene-stage mouse spermatocyte stained with SYCP3 (green), DAPI (blue), and γH2AX (magenta).

The cover photo presented is credited to Wenxin Xia from Scott Keeney's lab.

Weill Cornell Graduate School of Medical Sciences

Memorial Sloan Kettering Cancer Center

Weill Cornell Medicine
Graduate School of Medical Sciences

BCMB Allied Program

Biochemistry & Structural Biology, Cell & Developmental Biology, Molecular Biology

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Program Coordinators

Biochemistry & Structural Biology

The Biochemistry &tructural (BSB) program offers opportunities for advanced training in the application of biochemical, structural, biophysical and imaging methods, to address questions relating to biological processes and mechanisms.

Cell & Developmental Biology

The Cell & Developmental Biology (CDB) program comprises over 88 faculty members whose research focuses on a wide range of topics related to the control of normal and malignant cell growth, differentiation, and tissue development.

Molecular Biology

The Molecular Biology (MB) program provides unique research training to students in the molecular pathways involved in the control of nucleic acid transactions, gene expression, and cell growth and proliferation.

2025-2026 Rotation Dates

September 22nd - December 1st
January 5th - March 16th
March 30th - June 8th

Becoming a Doctoral Candidate- First Year Requirements

In their first year, BCMB Allied students must complete the program's core curriculum courses, attend BCMB Student Seminar, attend BCMB thesis defenses, and complete a minimum of three (3) lab rotations. Lab rotations are an important component of the students' first year in that they help him/her to decide on a research focus and select a thesis mentor, which is required by the end of the first year

Thesis Mentor

The choice of a mentor determines a student's program assignment: Biochemistry & Structural Biology, Cell & Developmental Biology, or Molecular Biology. The mentor helps the student select his/her Special Committee, consisting of the mentor and two other faculty members knowledgeable in the student's research field. The committee evaluates the student's research and progress through the rest of his/her WCGS career. Selection of the mentor and the committee typically occurs before the student starts their second year of study.

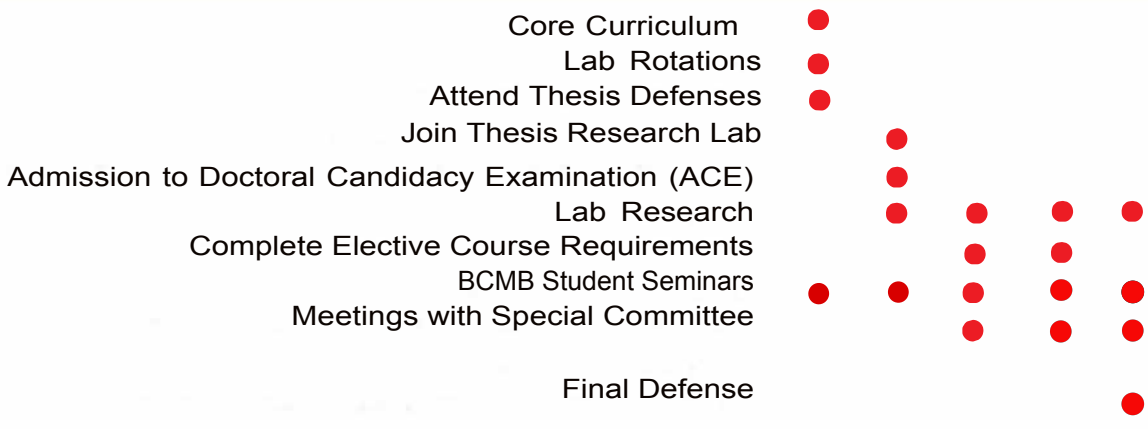
Admission to Doctoral Candidacy Examination (ACE)

In spring of the second year, the student takes the Admission to Doctoral Candidacy Examination (ACE), which includes a written component (a research proposal), and an oral examination in which the student defends the proposal and demonstrates general knowledge. Committees made up of program faculty members administer the written and oral ACE. When a student passes the ACE, she/he is a candidate for the PhD degree.

PhD Research and Degree

Within six months of passing the ACE (or before June 30 of their third year), the student must submit a two-page thesis project update to the Special Committee and meet with their committee. Thereafter, the student and the committee must meet together at least annually and students in year 5 and above must meet with their committee every six months. The student must submit a two-page progress report to their committee two weeks prior to each committee meeting. After passing the ACE and while working in the laboratory, the student must also complete two elective courses (two quarters), relevant to their thesis work and future goals. The culmination of the student's successful progression through the program is the final examination (the "defense") and certification by the Special Committee that the thesis represents an official piece of research that satisfies the requirements of the WCGS for the PhD degree.

Academic TIMELINE



Weill Cornell Graduate
School of Medical Sciences

BCMB Educational Program 2025-2026

Core Courses

i) First Year - *all students must complete the core sequence of:*

BCMB Student Seminar	Quarter I - Quarter IV
Biochemistry	Quarter I
Molecular Genetics	Quarter I Quarter II
Logic and Critical Analysis	Quarters II and III
From Genes to Cells	Quarters III and IV
From Cells to Organisms and Disease	Quarters III and IV
Responsible Conduct in Research (4 live sessions)	

ii) Course in Quantitative Biology - Introduction to Biostatistics (IDPT 9002 03)

All students enrolled in PhD programs within the Weill Graduate School of Biomedical Sciences are required to complete a one quarter course in Biostatistics. For BCMB students, this course will be taken during Quarter III of their second year in the program.

iii) Elective Course Work

Before graduation, students must complete additional elective coursework prior to submission of their thesis. In addition to participation in the BCMB Student seminars, two additional quarters or one semester electives must be fulfilled. These electives are generally taken in years 3 and 4.

BCMB Student Seminar Course: Learning how to effectively communicate one's science is an important skill to acquire during PhD training. BCMB student seminars involve two research-in-progress presentations from BCMB graduate students, to be scheduled at the beginning of each academic year. BCMB students **are required** to attend in years 1-5 and **are required** to present a 15-minute talk in year 3 and a 30-minute talk in years 4-5, including time for questions. All other BCMB students are encouraged to attend, and opportunities to present are available to second year students on a volunteer basis.

BCMB Educational Program 2025-2026

Elective Courses: To fulfill the remaining 2 quarter / 1 semester elective requirement, students must take courses on a subject relevant to their thesis project. Possible courses offered at Weill Cornell include Methods in Biophysics, Principles of Developmental Biology, and Cryoelectron Microscopy of Macromolecular Assemblies (NYSBC). Courses offered at other institutions, including Rockefeller University and the Cornell Tech Campus, can also be used to fulfill this requirement but require prior approval by the program directors and the registrar.

Students are required to complete the core curriculum during the first year and are advised to spread out the elective course requirements between their third and fourth years.

Students must register for all courses, including Student Seminar.

All core courses must be completed with a grade of high pass or better to remain in good academic standing (see "Good Standing Within the BCMB Program" below). All of the core courses cover material that is not usually taught at the undergraduate level and is crucial for success in science. "Logic and Critical Analysis", "From Genes to Cells" and "From Cells to Organisms and Disease" rely heavily on primary literature and classroom discussions. Active participation is expected and required to receive a passing grade in these courses. Failure to participate fully and obtain a High Pass or better will result in the review of a student's status by the program co-directors. Elective courses must be passed to count towards the BCMB allied graduate program’s course requirements.

Courses taken prior to matriculating in the BCMB Program may not be used to substitute for any of the course requirements.

BCMB Educational Program 2025-2026

Laboratory Rotations

All students are required to complete three laboratory rotations and receive a "pass" from each rotation faculty member.

Rotation Periods are:

Fall Rotation: Sep 22nd – Dec 1st
Winter Rotation: Jan 5th – Mar 16th
Spring Rotation: Mar 30th – Jun 8th

Laboratory Rotation Policies:

Lab rotations are an important aspect of your first-year curriculum. It is a chance for you to learn new techniques, to demonstrate your curiosity for scientific research and reasoning, and to determine whether that particular lab is a good match for you. It is also a time for the rotation faculty mentor to evaluate your ability to do bench research and your understanding of the technical and theoretical aspects of the project and the broader set of questions being addressed in the lab.

You must inform the BCMB co-directors of each of your rotation choices. At the beginning of each rotation, you must electronically submit a beginning of rotation form called the "Lab Rotation Agreement" on which you and your rotation faculty mentor outline the goals and expectations of your rotation. At the end of each lab rotation, it is your responsibility to prepare a brief lab report. Your rotation lab report should summarize your work in a maximum of two pages of text, excluding figures and references. Please attach a front page (example provided at the end of this handbook) with your name and the signatures of your rotation mentor and first-year advisor (see later) to indicate their approval of your report. Reports should be completed and approved by the rotation mentor by the end of the rotation. These reports should be submitted to the first year advisors. Once approved and signed by the first year advisor, reports are then submitted to Vanessa Dodson's office, 1300 York Ave, room A-131. You must also forward an electronic version to Vanessa Dodson. At the end of the rotation, you will submit an end of rotation form called the "Lab Rotation Evaluation" on which the rotation faculty mentor will submit electronically their evaluation of your rotation. You should schedule a meeting with your rotation faculty mentor at the conclusion of the rotation to discuss your progress and for a critique of your performance. Submission of all three rotation lab reports is required to remain in good academic standing and to progress to the elective courses and the ACE exam I.

i) It is expected that students will have chosen a thesis mentor by July 1st. The choice of mentor determines the student's Program assignment, (Biochemistry & Structural Biology, Cell and Developmental Biology or Molecular Biology). Students must inform Vanessa Dodson once they have chosen a thesis mentor.

ii) Each lab is eligible to take a maximum of 2 students per year from within the BCMB Allied Program.

BCMB Educational Program 2025-2026

First Year Review

The progress of all 1st year students is reviewed by the program directors at the end of the first year and reported to the curriculum committee. If a student has encountered difficulties during the 1st year curriculum, leading to the student being placed on academic probation, the student's case will be re- viewed by the full curriculum committee. The main purpose of this review is to identify the strengths and weaknesses of each student, so that, if possible, the student and faculty can work together to remedy any deficiency in training. At the end of the review, the curriculum committee will make a decision regarding the resolution of the student's probation status, which can range from prescribing a course of action to remediate any evident weaknesses (examples include requiring the student to re-take courses or recommending that the student be dismissed from the program). The student will receive a formal letter describing the committee's decision, which will be placed in his/her graduate school file.

First Year Advisors and First Year Meetings

A selected group of faculty serve as first year advisors. They are available to assist the student and help make the first year go as smoothly as possible. While each student will be assigned to a first year advisor, they should feel free to contact any of the first year advisors for information, discuss possible rotations, problems etc.

First year meeting is held every two weeks (in the early evening) throughout the first year. Attendance by first year students is expected. During first year meeting, students will learn to present effective chalk talks. It is also an opportunity for students to raise concerns and to ask the Program Co-directors and first year advisors for information.

BCMB Educational Program 2025-2026

Good Standing in the BCMB Program

To remain in good academic standing in the BCMB Allied graduate program, students must achieve a grade of B or above (High Pass or Honors) in each required course and maintain a High Pass average (GPA of 3.0) or above in all course work. A grade of Low Pass or Unsatisficatory(UX) requires remediation; the student must re-register for the course in the subsequent year and re-mediate their deficiency as defined by the Course Director, to achieve a grade of High Pass or above. The BCMB program gives students a temporary waiver while they remediate and attempt to return to good standing. Failure to achieve remediation of a course leads to a review which can have one of three outcomes: (1) recommendation to the Dean for the student to be dismissed from the program, (2) allowances for a grade below High Pass, as long as the student maintains a GPA of 3.0 or above by graduation (i.e. it is balanced by honors grades), (3) the requirement can be waived at the discretion of the BCMB leadership after consultation with the Dean.

Completed rotation reports are required to remain in good standing with the BCMB Allied program. Students in the 2nd year or above are also required to have a thesis mentor to remain in good standing. Students in the 3rd year or above are required to present annually at a scientific meeting and to complete an annual Special Committee meeting by June 30th each year to remain in good standing. Students in year 5 or above are required to complete a Special Committee meeting every six months, by December 30th and June 30th each year to remain in good standing. If a student fails to meet the requirements for good standing, they may be placed on academic probation. Failure to meet the requirements for good standing leads to a programmatic review that can result in one of three outcomes: (1) recommendation to the Dean for the student to be dismissed from the program, (2) the program prescribes a course of action for returning to good standing, (3) the student be allowed immediately to continue to pursue a Ph.D. in the BCMB Allied Program.

BCMB Educational Program 2025-2026

Advance To Candidacy Exam

The current chair of the ACE committee is Kirk Deitsch. A student must be in good academic standing to take the ACE. The ACE is administered in two sections: a written exam and an oral exam. For the written exam, the student prepares a research proposal on a topic selected by the student and approved by the major sponsor / thesis advisor. The written proposal is reviewed by three WCGSBS faculty that have been nominated by the student to serve on their ACE Examining Committee, and reviews are returned to the student as a written critique. The oral exam tests the student's ability to respond to comments in the critique, as well as the student's general knowledge. The Examining Committee for the oral consists of four faculty members: the Special Committee (i.e., the research mentor and two additional faculty members) and a chairperson. Before taking the ACE, students must have completed the core sequence of courses. The ACE is taken during the Spring of the second year. The official description of the requirements and procedures for the ACE is contained in a separate document, “BCMB ACE Guidelines 2024” that will be provided to students upon completion of their first-year requirements.

Between six months after completion of the ACE and no later than June 30th of their third year, each student is required to convene her/his first Special Committee meeting (see below for composition of the Special Committee). In addition, the student is required to prepare a written document outlining their thesis progress to date. This document should be no longer than 2 pages, excluding illustrations and references. It must be submitted to the Special Committee members at least 2 week in advance of this meeting. At the meeting, the student should be prepared to discuss in depth the background (general and specific) of the project, approaches that will be taken, and what has already been accomplished. This meeting will serve as a mechanism to ensure that the student’s thesis work is progressing. It will also serve to update the Committee with the student's project and to allow the committee to provide constructive comments. The 2 page document must be approved by the committee. A brief report will be completed by one of the committee members (not the thesis mentor) in LEARN for forwarding to the Program Directors. Completion of the post-ACE first Special Committee meeting is required to remain in good academic standing.

ACE Topic Choice

The topic is up to the student, with the following advisory considerations: It is the student's privilege to have flexibility and latitude in choice of the ACE topic. However, it is the student's responsibility to convincingly demonstrate independence of thought. The closer the ACE topic is to research projects previously conceived by the student's mentor or already being conducted in the host laboratory, the more difficult it may be to establish the independence of the student's thinking. However, it is often the case that the ACE is taken at a point when the thesis topic is not defined or the thesis topic that was initially chosen does not pan out. An independently-conceived ACE topic may give shape to or even become a thesis topic; this is welcomed.

BCMB Educational Program 2025-2026

The only restriction on topic choice is that all portions of the document must be written entirely independently from the student's mentor. While the student is encouraged to build on work previously conducted in the host laboratory, direct incorporation of specific aims, hypotheses, or conclusions from a previously written grant application from the mentor (or anyone else) is not allowed. The mentor must certify that the specific aims were developed and written independently, and that the content of the ACE proposal was not "lifted" from a pre-existing research plan. The student will be held responsible for all ideas expressed in the proposal, and will be expected to explain, justify, and defend all concepts described in the written document.

A suitable topic is one that incorporates experimentally testable models or hypotheses, is amenable to rational experimental design, and results in more than one predictable outcome for the experiments. Research topics that are seen as "fishing expeditions" or are not hypothesis-driven will generally not be approved.

As noted above, the thesis mentor head will be given the proposed specific aims page and the completed written proposal. For the student to proceed to the oral exam, the thesis mentor must attest that the specific aims and written proposal were prepared independently and that they reflect the original work of the student.

Special Committee

Once a thesis mentor has been agreed upon (which should occur by July 1), the student, in consultation with the mentor, forms a Special Committee composed of the thesis mentor and two additional faculty members. This committee acts to evaluate a student's research and should also serve as an informational resource to the student. Special Committee forms are available from the graduate office (Cornell A -131) or on the Graduate School Website.

A Program Chair (usually Dr. Kirk Deitsch) or a Program Co-director must sign these forms, which are then returned to Vanessa Dodson, who files them with the Dean's office. Any subsequent changes must be approved by a student's mentor and the appropriate Program Director and be indicated on the form on file in the Dean's office.

The Special Committee must meet at least once per year from year 3 through year 4, by July 1 and 5th year students and up must have a committee meeting every 6 months by January 1 and July 1 each year. Annual Special committee meetings are a requirement for remaining in good academic standing. For each Special Committee meeting (following the one that occurs within 6 months of completing the ACE), the student should prepare a 1-2 page written outline of progress and future goals. This must be submitted to all committee members prior to the meeting.

BCMB Educational Program 2025-2026

Requirements for Formal Presentations of Scientific Data

The ability to accurately and effectively present scientific data in a formal setting is vital to a productive scientific career. To encourage students to gain such experience, all students upon completion of their ACE must annually present original data at a formal scientific venue. This requirement can be fulfilled by presenting a Talk or Poster at the annual Vincent Du Vigneaud Memorial Symposium hosted by the Weill Cornell Graduate School, the annual BCMB Program Retreat held every Fall, various Departmental Seminar Series or at any National or International Scientific meeting. Fulfillment of this requirement must be verified at the student's annual special committee meeting. The student is required to submit to the special committee the abstract of the presentation.

Requirements for Submitting a Student Fellowship

All BCMB students are required to submit a fellowship application during their time in the WCGSBS. To qualify for this requirement, the fellowship application must include their writing a scientific proposal. Awarding of a fellowship is not required.

Anastasia Efthymiou in the graduate school office is available to provide lists of available fellowship opportunities and deadlines, to help with writing, editing, and submitting fellowship applications.

Academic Requirements for MD/PhD Students

MD/PhD students enter the Graduate Program following completion of:

- the Frontiers in Biomedical Science courses, which they take in the first two years of medical school,
- three lab rotations, during the summers preceding the first and second years of medical school and the summer after the second year of medical school.

- the first two years of the Medical School curriculum. MD/PhD students select their thesis laboratories and initiate their thesis research in the fall of their third year. During this year they also take four additional quarters of graduate courses, which they can take at either the Weill or the Rockefeller graduate schools. The ACE is administered to MD/PhD students in the Spring/summer of their third year. MD/PhD students must submit their Rockefeller Thesis Proposal (RTP) to both the MD/PhD office and the program coordinator at the Graduate School. All Weill Graduate School MD-PhD students must have a faculty member from the Rockefeller Graduate School on their special committee.

The only requirement of MD/PhD students that join the BCMB Allied program is attendance at the weekly BCMB Student Seminar Course and an annual presentation in this course for those in year 2 - 4 of their thesis research.

This course is required of our MD/PhD students because it equips the students with the knowledge and skills necessary to take their oral presentations to the next level, by improving their slide design, learning how to frame and effectively deliver their research story, how to pitch their talks at the correct level for the specific audience, as well as receiving constructive feedback from the course directors. This course is directed by Dirk Remus and Lukas Dow .”

The following pages include tentative schedules of the BCMB core courses from 2025-2026, to provide examples of the materials covered.

Core Courses:

- Biochemistry
- Molecular Genetics
- Genes to Cells
- Logic and Critical Analysis
- Cells to Organisms and Disease

*The From Cells to Organism and disease course schedule is from 2024-2025 but will be very similar to the 2025-2026 course schedule, but with different dates. The updated schedule will be provided to the students as it become available".

BIOCHEMISTRY COURSE - FALL 2025

Director: Baran Ersoy - bersoy@med.cornell.edu; (415) 215 1555; Belfer Research Building Rm 628

TAs: 2nd Year: Luke Cohen-Abeles - luc4006@med.cornell.edu; Ragavi Vijayakumar - rav4008@med.cornell.edu; Jennifer Yavid - jey4007@med.corne
1st Year: Cole Pacini - cop4006@med.cornell.edu; Jenny Zhang - jez4013@med.cornell.edu

Lecture	Date	Day		Lecturer	TA1	TA2	Location	Time
TA	25-Aug	M	Basics / Protein biochemistry	TAs				9:30 AM - 11:00 AM
1	27-Aug	W	Protein-protein interactions	Jonathan Goldberg				9:30 AM - 11:00 AM
2	29-Aug	F	Mass spectrometry of polypeptides	Alban Ordureau				9:30 AM - 11:00 AM
3	3-Sep	W	Post-translational modification-mediated signaling	Cristina Gladcova				9:30 AM - 11:00 AM
4	5-Sep	F	Membrane transport and fluxes	Melinda Diver				9:30 AM - 11:00 AM
5	8-Sep	M	Protein folding. Non-covalent forces	David Eliezer				9:30 AM - 11:00 AM
TA	10-Sep	W	Pymol workshop	TAs				9:30 AM - 11:00 AM
6	12-Sep	F	Enzymes: Why do they work?	Christopher Lima				9:30 AM - 11:00 AM
7	15-Sep	M	Reaction mechanisms: Pymol exercise	Christopher Lima				9:30 AM - 11:00 AM
8	17-Sep	W	Protein purification I	Stewart Shuman				9:30 AM - 11:00 AM
9	19-Sep	F	Protein purification II	Stewart Shuman				9:30 AM - 11:00 AM
10	22-Sep	M	Cryo-EM	Hite				9:30 AM - 11:00 AM
TA	25-Sep	R	Calculus	TAs				5:30 AM - 7:00 PM
11	26-Sep	F	Physical principles that govern chemical reactions	Tim Ryan				9:30 AM - 11:00 AM
12	29-Sep	M	Ligand binding	Kenneth Marians				9:30 AM - 11:00 AM
TA	30-Sep	T	Basics of probability	TAs				5:30 PM - 7:00 PM
13	3-Oct	F	Thermodynamics I	George Khelashvili				9:30 AM - 11:00 AM
14	6-Oct	M	Thermodynamics II	George Khelashvili				9:30 AM - 11:00 AM
15	10-Oct	F	Glucose metabolism and cancer	Andrew Intlekofer				9:30 AM - 11:00 AM
16	13-Oct	M	Lipid metabolism	Baran Ersoy				9:30 AM - 11:00 AM
17	15-Oct	W	Fluorescence-based technologies	Morgan Huse				9:30 AM - 11:00 AM
18	17-Oct	F	Quantitative imaging	Mary Teruel				9:30 AM - 11:00 AM
19	20-Oct	M	Metabolomics and metabolite profiling	Steven Gross				9:30 AM - 11:00 AM
20	22-Oct	W	Biochemistry of lipids and membranes	Anant Menon				9:30 AM - 11:00 AM
21	24-Oct	F	Genomic tools and data analysis	Iestyn Whitehouse				9:30 AM - 11:00 AM
22	27-Oct	M	Proteins and nucleic acids	Dr. Mayr				9:30 AM - 11:00 AM

Molecular Genetics Fall 2025

Lectures	Tue/Thurs 10-11:30AM
TA discussion sessions	Wednesday 5:30-6:30pm and then 10/1/25, 6:30-7:30pm.
Review sessions	

Lecture number	Date			Confirmed	TA	Room Assignment
welcome	8/26/25	WELCOME	Course Directors			10:00 AM - 11:30 AM
1	8/28/25	Advanced Genetic Approaches-1	Xiaolan Zhao	Yes		10:00 AM - 11:30 AM
2	9/2/25	Advanced Genetic Approaches-2	Xiaolan Zhao	Yes		10:00 AM - 11:30 AM
TA discussion	9/3/25	Discussion on lectures 1&2				5:30-6:30pm
3	9/4/25	Meiotic recombination	Scott Keeney	Yes		10:00 AM - 11:30 AM
4	9/9/25	RNAi	Eric Lai	Yes		10:00 AM - 11:30 AM
TA discussion	9/10/25	Discussion on lectures 3&4				5:30-6:30pm
5	9/11/25	CRISPR in nature and the lab	Naama Aviram	Yes		10:00 AM - 11:30 AM
6	9/16/25	C. elegans genetics	Zhirong Bao	Yes		10:00 AM - 11:30 AM
TA discussion	9/17/25	Discussion on lectures 5&6				5:30-6:30pm
7	9/18/25	Genome modification & Genetic Concepts	Danwei Huangfu	Yes		10:00 AM - 11:30 AM
8	9/23/25	Genome modification & DNA repair	Maria Jasin	Yes		10:00 AM - 11:30 AM
	9/24/25	NO DISCUSSION	potential BCMB RETREAT			
	9/25/25	NO LECTURE	potential BCMB RETREAT			
9	9/30/25	Drosophila-1	Jen Zallen	Yes		
Review	10/1/25	**Discussion on lectures 7&8**				**5:30 PM - 7:30 PM**
	10/2/25	**MID_TERM BREAK -Exam Handout**				10:00 AM - 11:30 AM
10	**10/7/25**	Drosophila-2	Mary Baylies	Yes		10:00 AM - 11:30 AM
TA discussion	**10/8/25**	Discussion on lecture 9&10				5:30-6:30pm
11	**10/9/25**	Zebrafish genetics	Todd Evans	Yes		10:00 AM - 11:30 AM
12	**10/14/25**	Mouse genetics	Joo-Hyeon Lee	Yes		10:00 AM - 11:30 AM
TA discussion	10/15/25	Discussion on lectures 11&12				5:30-6:30pm
13	10/16/25	Cancer genetics	Andrea Ventura	Yes		10:00 AM - 11:30 AM
14	10/21/25	Human Genetics	Elizabeth Ross	Yes		10:00 AM - 11:30 AM
TA discussion	10/22/25	Discussion on lectures 13&14				5:30-6:30pm
15	10/23/25	Epigenetics 1	Effie Apostolou	Yes		10:00 AM - 11:30 AM
16	10/28/25	Epigenetics 2	Alexandros Pertsinidis	Yes		10:00 AM - 11:30 AM
TA discussion	10/29/25	Discussion on lectures 15&16				5:30-6:30pm
Review	10/30/25	Review Session	TAs and Course Directors			10:00 AM - 11:30 AM
	11/4/25	**FINAL_Exam Handout**				

Teaching Assistants

Sher Bahadur	shb4025@med.cornell.edu
Holly Sandborg	hks4001@med.cornell.edu
Eleanor Smith	ejs4004@med.cornell.edu
Vincent (Wenxin) Xia	xiaw1@mskcc.org

2025-2026 BCMB Student Seminars

DATE	PRESENTER 1	PRESENTER 2	ROOM		TIME
Sep 12	Dirk Remus	Luke Dow	RRL-116	Intro	4:00 - 5:00 PM
Sep 19	Tzippora Chwat-Edelstein	Katarina Liberatore	RRL-116		4:00 - 5:00 PM
Sep 26	NO CLASS	NO CLASS	NO CLASS	BCMB retreat?	
Oct 3	Evi Hadjimichael	Claudia Edgar	RRL-116		4:00 - 5:00 PM
Oct 10	Kritika Kasliwal	Tanmay Mishra	RRL-116		4:00 - 5:00 PM
Oct 17	Hina Shah	Danielle Isakov	RRL-116		4:00 - 5:00 PM
Oct 24	Victoria Miller-Browne	William Fall	RRL-116		4:00 - 5:00 PM
Oct 31	Alison Klein	Briana Turner	M-107		4:00 - 5:00 PM
Nov 7	Emily DeBitetto	Yanira Guerra	RRL-116		4:00 - 5:00 PM
Nov 14	Amelia Ohnstad	Jiaqian Luo	RRL-116		4:00 - 5:00 PM
Nov 21	Hailey Goldberg	Emma Johnsson	RRL-116		4:00 - 5:00 PM
Nov 28	NO CLASS	NO CLASS	NO CLASS	Thanksgiving	
Dec 5	Emily Goetzler	Max Krops	RRL-116		4:00 - 5:00 PM
Dec 12	Yu-Hui (Vivian) Chiu	Angela Montero	C-200		4:00 - 5:00 PM
Dec 19	NO CLASS	NO CLASS	NO CLASS	Winter Recess	
Dec 26	NO CLASS	NO CLASS	NO CLASS	Winter Recess	
Jan 2	NO CLASS	NO CLASS	NO CLASS	Winter Recess	
Jan 9	Cassie Manrique	Shakti Ramsamooj	TBD		4:00 - 5:00 PM
Jan 16	NO CLASS	NO CLASS	TBD	MLK	
Jan 23	Mengyang Zou	Yaofeng Zhong	TBD		4:00 - 5:00 PM
Jan 30	Jian Zheng	Hang Yin	TBD		4:00 - 5:00 PM
Feb 6	Rebecca Londoner	Ally Duren-Lubanski	TBD		4:00 - 5:00 PM
Feb 13	NO CLASS	NO CLASS	NO CLASS	President's Day	
Feb 20	Ruobing Cui	Monica Selvaraj	TBD		4:00 - 5:00 PM
Feb 27	Qianqian (Skylar) Lin	Gabrielle Peterson	TBD		4:00 - 5:00 PM
Mar 6	NO CLASS	NO CLASS	NO CLASS	Spring Recess	
Mar 13	Xin Yu Zhu Jiang	Zerina Balic	TBD		4:00 - 5:00 PM
Mar 20	Peyton Carpen	Jeyaram Ravichandran Da	TBD		4:00 - 5:00 PM
Mar 27	Jackie Crater	Asha Sidhu	TBD		4:00 - 5:00 PM
Apr 3	Young Sun Lee	Isaac Nathoo	TBD		4:00 - 5:00 PM
Apr 10	Holly Sandborg	Sneha Pramod	TBD		4:00 - 5:00 PM
Apr 17	Ragavi Vijayakumar	Luke Cohen-Abeles	TBD		4:00 - 5:00 PM
Apr 24	Rebecca Su	Saloni Hombalkar	TBD		4:00 - 5:00 PM
May 1	Giuliana Calia	Lourdes Pajuelo	TBD		4:00 - 5:00 PM
May 8	Rebecca Wu	Emilee Barnard	TBD		4:00 - 5:00 PM
May 15	Alex Jia	Riley Ogrean	TBD		4:00 - 5:00 PM
May 22	NO CLASS	NO CLASS	NO CLASS	Memorial Day weekend	
May 29	Jiahui (Hazel) Zhao	Alex Earsley	TBD		4:00 - 5:00 PM
Jun 5	Zoe Jiang	Yosip Kelemen	TBD		4:00 - 5:00 PM
Jun 12	Carolyn Ton	Jen Yavid	TBD		4:00 - 5:00 PM

BCMB Program, Weill Cornell Graduate School of Medical Sciences

Core course 2025 - 2026

9.00 am - 11.00 am

Part I. From genes to cells

TAs:

				Student presenter	TA	room	email
1. Synthetic lethalities, DNA repair and recombination							
	1-Dec	M	**Agnel Sfeir** lecture - Synthetic lethalities				sfeirA@mskcc.org
	2-Dec	T	**Agnel Sfeir** - paper discussion				
	3-Dec	W	**John Petrini** lecture - DNA repair				petrinij@MSKCC.ORG
	4-Dec	Th	**John Petrini** - paper discussion				
	5-Dec	F	**Jayanta Chaudhuri** lecture - Recombination				chaudhuj@mskcc.org
2.Telomeres, DNA replication							
	8-Dec	M	**Jayanta Chaudhuri** - paper discussion				
	9-Dec	T	**Dirk Remus** lecture - DNA Replication				remusd@mskcc.org
	10-Dec	W	**Dirk Remus -**paper discussion				
	11-Dec	Th	**Neal Lue** lecture - Telomeres				nflue@med.cornell.edu
	12-Dec	F	**Neal Lue** - paper discussion				
3. Cell division, chromosomal instability, and nuclear organization							
	5-Jan	M	**Prasad Jallepalli** lecture - Mitosis				jallepap@mskcc.org
	6-Jan	T	**Prasad Jallepalli** - paper discussion				
	7-Jan	W	**John Maciejowski** lecture - Chromosomal Instability				maciejoj@mskcc.org
	8-Jan	Th	**John Maciejowski** - paper discussion				
	9-Jan	F	**Alexandros Pertsinidis** lecture - Gene regulation and nuclear organization				PertsinA@mskcc.org
4. Transcription, chromatin							
	12-Jan	M	**Alexandros Pertsinidis** - paper discussion				
	13-Jan	T	**Iestyn Whitehouse** lecture **-** Transcription				whitehoi@mskcc.org
	14-Jan	W	**Iestyn Whitehouse** - paper discussion				
	15-Jan	Th	**Yicheng Long** lecture - Chromatin				yil4011@med.cornell.edu
	16-Jan	F	**Yicheng Long** - paper discussion				
5. RNA isoforms							
MLK day	19-Jan	M	NO CLASS				
	20-Jan	T	**Omar Abdel-Wahab** lecture - RNA splicing				abdelwao@mskcc.org
	21-Jan	W	**Omar Abdel-Wahab** - paper discussion				
	22-Jan	Th	**Christine Mayr** lecture - RNA 3' end processing				mayrc@mskcc.org
	23-Jan	F	**Christine Mayr** - paper discussion				
5. RNA turnover							
	26-Jan	M	**Chris Lima** lecture - RNA turnover				limac@mskcc.org
	27-Jan	T	**Chris Lima** - paper discussion				
	28-Jan	W	NO CLASS - RECRUITMENT				
	29-Jan	Th	NO CLASS - RECRUITMENT				
	30-Jan	F	NO CLASS				
6. Noncoding RNA, translation							
	2-Feb	M	**Benjamin Kleaveland** lecture - Regulatory RNAs				bek9059@med.cornell.edu
	3-Feb	T	**Benjamin Kleaveland** - paper discussion				
	4-Feb	W	**Heeseon An** lecture - Ribosomes				anh@mskcc.org
	5-Feb	Th	**Heeseon An** - paper discussion				
	6-Feb	F	NO CLASS				
7. Ubiquitin-mediated protein control, membrane proteins							
	9-Feb	M	**Alban Ordureau** lecture - Ubiquitin-mediated protein control				ordureaa@mskcc.org
	10-Feb	T	**Alban Ordureau** - paper discussion				
	11-Feb	W	**Tobi Walther** lecture - Lipids				TWalther@mskcc.org
	12-Feb	Th	**Tobi Walther - paper discussion**				
	13-Feb	F	NO CLASS				
8. Ion channels, lipids							
esidents' Da	16-Feb	M	NO CLASS				
	17-Feb	T	**Richard Hite** lecture - Ion Channels				hiter@mskcc.org
	18-Feb	W	**Richard Hite** - paper discussion				
	19-Feb	Th	**Melinda Diver** lecture - Membranes and membrane proteins				diverm2@mskcc.org
	20-Feb	F	**Melinda Diver** - paper discussion				
9. Cytoskeleton, mitochondria							
	23-Feb	M	NO CLASS				
	24-Feb	T	**Philipp Niethammer** lecture - Actin				niethamp@mskcc.org
	25-Feb	W	**Philipp Niethammer** - paper discussion				
	26-Feb	Th	**Giovanni Manfredi** lecture - Mitochondrial metabolism				gim2004@med.cornell.edu
	27-Feb	F	**Giovanni Manfredi** - paper discussion				
SPRING BREAK							
	2-Mar	M	NO CLASS Spring Break				
	3-Mar	T	NO CLASS Spring Break				
	4-Mar	W	NO CLASS Spring Break				
	5-Mar	Th	NO CLASS Spring Break				
	6-Mar	F	NO CLASS Spring Break				
10. Metabolism, autophagy							
	9-Mar	M	NO CLASS				
	10-Mar	T	**Xuejun Jiang** lecture - Autophagy				jiangx@mskcc.org
	11-Mar	W	**Xuejun Jiang** paper discussion				
	12-Mar	Th	**Ben Hopkins** lecture - Metabolism				beh2020@med.cornell.edu
	13-Mar	F	**Ben Hopkins** paper discussion				
EXAM I							
	16-Mar	M	NO CLASS				
	17-Mar	T	NO CLASS				
	18-Mar	W	NO CLASS				
	19-Mar	Th	NO CLASS				
	20-Mar	F	**EXAM**				

BCMB Logic and Critical Analysis 2025 Syllabus

Course Director: Naama Aviram and Jess Sheu-Gruttadauria (Assistant Professors, MSKCC Molecular Biology Program)

Faculty (discussion section leaders)
Naama Aviram (MSKCC, Molecular Biology Program)
Andrea Ventura (MSKCC, Cancer Biology and Genetics Program)
Itai Yanai (New York University, Grossman School of Medicine, Department of Biochemistry and Molecular Pharmacology)
Jess Sheu-Gruttadauria (MSKCC, Molecular Biology Program)

Overview:
This course is designed to reinforce several foundational facets of being a scientist. We will explore the foundations of the scientific method, including how you develop a logical and rigorous experimental path to address a hypothesis. We will also discuss how you identify compelling scientific questions and hypotheses in the first place, and how creativity plays a central role in the generation of innovative scientific ideas. Lastly, we will develop your ability to critically and objectively analyze information and data. We will encourage you to ask questions about what you read, understand what is founded in experimental observation and what is based on assumption, and explore critical next steps and unresolved issues. These skills become especially essential in the modern day, where we have access to a multitude of information at our fingertips. This challenge has been additionally transformed by the advent of AI, which can now not only synthesize and analyze existing data to form predictive models but can also generate entirely new content. Therefore, we will also discuss how to be a critical scientist in the age of AI.

Format

Class format will change during every session but will be focused on discussion and student participation. We will have one introductory session, a paper discussion, a guest lecture focused on the creative scientific process, a lecture and discussion section focused on identifying and dismantling scientific assumptions, and a discussion section on AI in research. All sessions will be in-person, led or moderated by a faculty member. Assigned readings will be provided beforehand by mid-October. Many of these readings will be outside your area of expertise. We suggest that you read through the paper critically and seek additional resources to familiarize yourself with the scientific question and techniques used. Please come prepared to discuss all readings.

Grading

Your grade will be based on your participation in class discussions and the final small-group presentations. Everyone is expected to actively participate by asking and answering multiple questions, with the goal of fostering a lively discussion in each session.

Schedule:

11/10 -
10 AM-12 PM- Naama Aviram (MSKCC, Molecular Biology Program) – Introduction to Logic and Critical Thinking

11/11 –
11 AM-1 PM - Andrea Ventura (MSKCC, Cancer Biology and Genetics Program) - Paper discussion

11/13 -
3-5 PM - Itai Yanai (NYU Langone) - Night Science
Dr. Yanai will also be presenting as part of the SKI Molecular Biology Program Research Seminar Series in MSKCC – M107 between 1-2PM. Room M107 can be found by entering MSKCC through the 1275 entrance and going up the escalator to the first floor.

11/18 -
10 AM-12 PM - Jess Sheu-Gruttadauria (MSKCC, Molecular Biology Program) – Deconstructing an assumption

11/20 -
3-5 PM - Student-led discussion on AI in research.

BCMB Program, Weill Cornell Graduate School of Medical Sciences

Core course Spring 2025

9:30 am - 11:00 am

Part II. From cells to organisms and disease

Google Drive for course materials:

Zoom for all meetings:

Box for all recorded lectures

TAs

Emily Goetzler

Ragavi Vijayakumar

Luke Cohen-Abeles

			Faculty	Title	Student presenter	TA	Room	Faculty email	PA email
1. Cell division, senescence and cell death									
	17-Mar	M	**Andy Koff**	**cell cycle**		Ragavi	BB 302-A,B	a-koff@ski.mskcc.org	
	18-Mar	T	**Andy Koff**	paper discussion	Qinyue Zhang	Ragavi	BB 302-A,B		
	19-Mar	W	**David Simon**	**cell death**		Ragavi	**BB 204-A,B**	djs4002@med.cornell.edu	
	20-Mar	Th	**David Simon**	paper discussion	Jenny Zhang	Ragavi	BB 302-A,B		
	21-Mar	F	NO CLASS						
2. Cell adhesion									
	24-Mar	M	**Eric Lai**	**Notch signaling**		Ragavi	BB 302-A,B	laie@mskcc.org	
	25-Mar	T	**Eric Lai**	paper discussion	Elaine Wu	Ragavi	BB 302-A,B		
	26-Mar	W	**Michael Overholtzer**	**cell-cell adhesion**		Ragavi	A-950	overhom1@mskcc.org	
	27-Mar	Th	**Michael Overholtzer**	paper discussion	Eva Volckova	Ragavi	BB 302-A,B		
	28-Mar		NO CLASS						
3. Development 1									
	31-Mar	M	**Masha Akhmanova**	**cell migration in tissues**		Luke	BB 302-A,B	akhmanm1@msk	cc.org
	1-Apr	T	**Masha Akhmanova**	paper discussion	Gary Sun	Luke	BB 302-A,B		
	2-Apr	W	**Jen Zallen**	**polarity and pattern formation**		Ragavi	**WGC-B,C**	zallenj@mskcc.org	
	3-Apr	Th	**Jen Zallen**	paper discussion	Eleanor Smith	Ragavi	**WGC-A,B**		
	4-Apr	F							
4. Development 2									
	7-Apr	M	**Kat Hadjantonakis**	**Establishing the mammalian body plan**		Emily	BB 302-A,B	Hadjanta@MSK	clericon@mskcc.
	8-Apr 9-Apr	T W	**Mary Baylies Mary Baylies**	**Organogenesis** paper discussion	Ruth Raichur	Ragavi Ragavi	BB 302-A,B **WGC-B,C**	m-baylies@ski.mskcc.org	
	10-Apr	Th	**Kat Hadjantonakis**	paper discussion	Jack Marchese	Emily	BB 302-A,B		
	11-Apr	F	NO CLASS						
5. Development 3 / signalling 1									
	14-Apr	M	**Carl Blobel**	**cell adhesion to matrix**		Emily	BB 302-A,B	BlobelC@HSS.Edu	
	15-Apr	T	**Carl Blobel**	paper discussion	Chuyan Liu	Emily	BB 302-A,B		
	16-Apr	W	**John Blenis**	**mTOR signaling**		Emily	**BB 204-A,B**	job2064@med.cornell.edu	
	17-Apr	Th	**John Blenis**	paper discussion	Josh Li	Emily	BB 302-C,D		
	18-Apr	F	NO CLASS						
6. Signaling 2									
	21-Apr	M	**Shannon Reilly**	**Diabetes and insulin signalling**		Emily	BB 302-A,B	smr4005@med.cornell.edu	
	22-Apr	T	**Shannon Reilly**	paper discussion	Minseo Kim	Emily	BB 302-A,B		
	23-Apr	W	**Joshua Levitz**	**G coupled signaling**		Emily	**BB 204-A,B**	jtl2003@med.cornell.edu	
	24-Apr	Th	**Joshua Levitz**	paper discussion	Jung Eun Kim	Emily	**WGC-A,B**		
	25-Apr	F	NO CLASS						
7. Signaling 3									
	28-Apr	M	**Tommy Vierbuchen**	**Modeling neural development with pluripotent stem c**		Ragavi	BB 302-A,B	vierbuct@mskcc.org	
	29-Apr	T	**Tommy Vierbuchen**	paper discussion	Yuting Huang	Ragavi	BB 302-A,B		
	30-Apr	W	**Tuomas Tammela**	**Wnt signaling**		Emily	**BB 302-C,D**	tammelat@mskcc.org	
	1-May	Th	**Tuomas Tammela**	paper discussion	Sarah DeFrancisco	Emily	**WGC-C**		
	2-May	F	NO CLASS						
9. Cancer									
	5-May	M	**Scott Lowe**	**Cancer studies in animal models**		Emily	BB 302-A,B	lowes@mskcc.org	
	6-May	T	**Scott Lowe**	paper discussion	Benton Bailey	Emily	BB 302-A,B		
	7-May	W	**Rohit Chandwani**	**Epigenetic mechanisms in tumor initiation**		Emily	**WGC-B,C**	roc9045@med.cornell.edu	
	8-May	Th	**Rohit Chandwani**	paper discussion	Abbie Collette	Emily	BB 302-A,B		
	9-May	F	NO CLASS						
9. Cancer									
	12-May	M	**Mara Sherman**	**Cells in the cancer microenvironment**		Luke	BB 302-A,B	shermam1@mskcc.org	
	13-May	T	**Mara Sherman**	paper discussion	Sher Bahadur	Luke	BB 302-A,B		
	14-May	W	**Convocation**						
	15-May	Th	**Commencement**						
	16-May	F	NO CLASS						
10. Aging									
	19-May	M	**David Eliezer**	**Alzheimer's and Parkinson's disease**		Luke	**WGC-A,B**	dae2005@med.cornell.edu	
	20-May	T	**David Eliezer**	paper discussion	Dulguun Baasan	Luke	**A-950**		
	21-May	W	**Fred Maxfield**	**Atherosclerosis**		Luke	**A-950**	frmaxfie@med.cornell.edu	
	22-May	Th	**Fred Maxfield**	paper discussion	Cole Pacini	Luke	**WGC-A,B**		
	23-May	F	NO CLASS						
11. Infection									
	26-May	M	**MEMORIAL DAY**						
	27-May	T	**Iliyan Iliev**	**Fungal Immunology and disease**		Luke	BB 302-A,B	iliev@med.cornell.edu	
	28-May	W	**Iliyan Iliev**	paper discussion	Eliana Bohn	Luke	**BB 204-A,B**		
	29-May	Th	**Dirk Schnappinger**	**Tuberculosis**		Luke	BB 302-A,B	dis2003@med.cornell.edu	
	30-May	F	**Dirk Schnappinger**	paper discussion	Wenxin Xia	Luke	**BB 204-A,B**		
	2-Jun	M	**Kirk Deitsch**	**Malaria**		Luke	BB 302-A,B	kwd2001@med.cornell.edu	
	3-Jun	T	**Kirk Deitsch**	paper discussion	Qinyue Zhang	Luke	**WGC-A,B**		
Exam Due									

Lab Rotation Research Progress Report

BCMB Allied Graduate Program

Rotation Period: ◯ **Summer** ◯ **Fall** ◯ **Winter** ◯ **Spring**

Project Title:

Student's Name: _____

Lab Rotation Mentor: _____

Signature: _____

1st Year Advisor: _____

Signature: _____