



UNIVERSITY OF  
MICHIGAN

**Academic Year 2024-2025**  
**Fall 2024 Orientation**

**Department of Molecular, Cellular, and  
Developmental Biology**

**Graduate Student Handbook**

The University of Michigan is located on the traditional territory of the Anishinaabe people. In 1817, the Ojibwe, Odawa, and Bodewadami Nations made the largest single land transfer to the University of Michigan. This was offered ceremonially as a gift through the Treaty at the Foot of the Rapids so that their children could be educated. Through these words of acknowledgment, their contemporary and ancestral ties to the land and their contributions to the University are renewed and reaffirmed. *Source: writing by Ethriam Cash Brammer, PhD*

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## Our Community

### First-Year MCDB Doctoral Students, Fall 2024

Name	e-mail Address	
Arshad, Kanza	kanza@umich.edu	Univ. Veterinary & Animal Sciences, BS Cornell University, MS
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Ramchandani, Harshita	harshimr@umich.edu	New York University, BA
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Tran, Jeannine	tranjean@umich.edu	University of Michigan, BS & MS
Yenglin, Steven	yenglins@umich.edu	University of Michigan, BS & MS
Yu, Keyao	keyaoy@umich.edu	Chengdu University of Technology, BS Hunan University, MS

## Continuing MCDB Doctoral Students, Fall 2024

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Chen, Liang	lchenum@umich.edu	Ming Li
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Eduful, Joshua	jedufull@umich.edu	Csankovszki
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Luo, Juncheng (Andrew)	jcluo@umich.edu	Marand
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Ravi, Keerthikka	krthkkrv@umich.edu	Huffnagle
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Rolling, Luke	rollingl@umich.edu	Jakob
Scheer, Holly	scheerh@umich.edu	Wittkopp
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Spurgeon, Kelyah	kelyahs@umich.edu	Kozik
Wentworth, Katherine	kwentwo@umich.edu	Nandakumar
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Yang, Lizi	ylizi@umich.edu	Buttitta
Ye, Suji	sujiye@umich.edu	He
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Yu, Ge (Tony)	yuge@umich.edu	Klionsky
Zang, Juliana	zangjul@umich.edu	DeSantis
Zhang, Zhihai	zhihaiz@umich.edu	Klionsky
Zhao, Haikun	haikun@umich.edu	Ming Li
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## Pathways Master's Students, Fall 2024

Name	e-mail Address	Mentor
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Madry, Tevon	tevonmad@umich.edu	Csankovszki
Ntamubano, Souzane	nsouzane@umich.edu	Kozik
Rollinson, Sasha	sasharo@umich.edu	TBD

## MCDB Traditional Master's Students, Fall 2024

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Barden, Joseph	jrbarden@umich.edu	
Beck, Liam	ljbeck@umich.edu	
Bitsko, Corinne	cbitsko@umich.edu	
Bojanowski, Stephen	sbojanow@umich.edu	
Cai, Xiangchen (Harry)	harrycai@umich.edu	[Dual degree]
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Liu, Jiayu	ljiayu@umich.edu	
Malik, Tausif	tausifm@umich.edu	
McClear, Christian	cmcclear@umich.edu	
Sowers, Evelyn	efsowers@umich.edu	
Yu, Qianyi	qianyi@umich.edu	

## Department Retreat

MCDB gathers yearly for a retreat, usually in the fall. The goal is to enhance interactions among the faculty, postdoctoral scientists, and graduate students. First-year graduate students are expected to attend to help them become familiar with the research and the personnel in the department. This is an excellent opportunity to meet faculty and fellow students and to learn about department research. All graduate students are encouraged to attend this event.



## Diversity, Equity, and Inclusion

The MCDB Department is committed to developing a graduate program that enhances the training of scientists of all backgrounds and identities. MCDB strives to provide equitable and inclusive teaching and laboratory research opportunities within the department and at the university.

MCDB is also committed to providing equitable and inclusive fellowship opportunities and organizing diverse, equitable, and inclusive events. MCDB aims to engage the public through outreach activities by our students and faculty.

Our graduate students organize DEI events that are open to the entire MCDB community while our faculty are involved in initiatives to help increase DEI across all educational and professional levels in MCDB. Together, we strive towards equity through these actions. For more information on our activities and other resources, please see the links below.

Please see the Diversity section of the MCDB website for the current committee, including graduate student representatives.

<https://lsa.umich.edu/mcdb/diversity.html>

<https://lsa.umich.edu/lsa/about/diversity--equity-and-inclusion.html>

## Graduate Student Council

The MCDB Graduate Student Council aims to improve student life and education within MCDB through departmental events, research, recruitment, and student activities.

We provide opportunities for graduate students to cultivate professional relationships, build leadership skills, and participate in community outreach for both the university and the broader public.

Learn more at: <https://lsa.umich.edu/mcdb/graduate-students/graduate-student-council.html>

## Graduate Academic Affairs

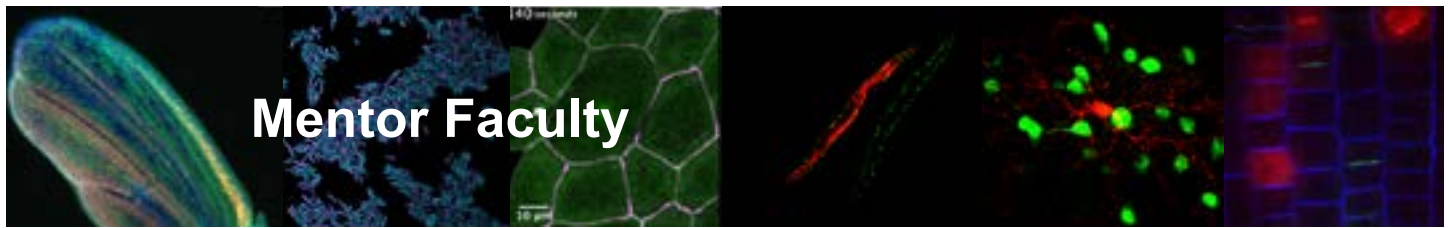
Academic affairs of the MCDB graduate program fall to two standing committees: Admissions Committee and the Graduate Studies Committee. These committees aim to provide an environment that is conducive to students becoming productive scientists and thoughtful human beings. Both committees include graduate student representatives. Please see the MCDB website for the current membership: <https://lsa.umich.edu/mcdb/graduate-students/grad-committees.html>

### Admissions Committee

The Admissions Committee reviews all applications to the program and recommends admissions offers, and is involved in recruiting, both externally and internally.

### Graduate Studies Committee

The Graduate Studies Committee (GSC) monitors the year-round issues that occur in the graduate program, including preliminary examinations, orientation, internal awards, and individual concerns that may arise.



Akaaboune, Mohammed	4168 BSB	makaabou	Neurobiology development; synaptic plasticity
Aton, Sara	4268 BSB	saton	Systems & sleep neurobiology, nervous system plasticity
Bardwell, Jim	5018 BSB	jbardwel	Protein folding
Buttitta, Laura	5218 BSB	buttitta	Cell cycle regulation in <i>Drosophila</i>
Cadigan, Ken	5210 BSB	cadigan	<i>Drosophila</i> development & signal transduction
Chang, Amy	3218 BSB	amychang	Yeast cell biology
Chapman, Matt	5268 BSB	chapmanm	Molecular physiology
Clowney, E. "Josie"	4218 BSB	jclowney	<i>Drosophila</i> olfactory system neural circuits
Cone, Roger	3145 LSI	rcone	Nervous system energy storage regulation
Csankovszki, Gyorgyi	5214 BSB	gyorgyi	Dual roles of condensin complexes in <i>C. elegans</i>
DeSantis, Morgan	4210 BSB	mdesant	Microtubule associated motor protein transport of cellular cargo
Duan, Bo	4260 BSB	bduan	Neural circuits underlying sensory modalities
Duan, Cunming	3268 BSB	cduan	Molecular animal physiology
Dus, Monica	4214 BSB	mdus	Effect of the environment of neural activity and behavior; epigenetics, gene expression, and neurobiology
He, Ping	5118 BSB	pinghemi	Host defense mechanisms against infections while preventing immune over-activation in <i>Arabidopsis</i> as a model organism
Huffnagle, Gary	3232 BSB	ghuff	Microbiology and microbiomes
Huycke, Tyler	Coming Jan. 2025	thuycke	Tissue morphogenesis in mice

Jakob, Ursula	5014 BSB	ujakob	Biochemistry & molecular cell biology
Kargbo-Hill, Sarah	4168 BSB	skarhill	Neuronal epigenomic and transcriptomic mechanisms to regulate gene expression in response to stress, aging and neurodegenerative disease
Klionsky, Dan	6036 LSI	klionsky	Protein targeting and organelle biogenesis; autophagy
Kozik, Ariangela	3214 BSB	dariange	Microbiome, transcriptome, metabolome, molecular and computational biology approaches to understand host-microbe crosstalk and microbe-microbe interactions in the human respiratory tract
Kramer, Paul	4160 BSB	pfkramer	Neuronal excitability, synaptic transmission and axonal physiology. Substances abuse effects on axonal excitability
Kumar, Anuj	3210 BSB	anujk	Functional genomics/proteomics in yeast & <i>C. albicans</i>
Lee, Tzumin	6435 LSI	tzumin	Genetic principles of complex brain development in <i>Drosophila</i>
Li, Ming	4114 BSB	mlium	Lysosomal function & protein quality control regulation
Marand, Alexandre	5142 BSB	amarand	Mechanisms of transcriptional regulation and the relationship with molecular, cellular, and organismal phenotypes
Miller, Ann	5264 BSB	annlm	Cytokinesis regulation by Rho small GTPases
Nandakumar, Jayakrishnan	5064 BSB	jknanda	Telomerase assembly/function
Nielsen, Erik	5114 BSB	nielsene	Proper deposition of plant cell wall components
Schiefelbein, John	5110 BSB	schiefel	Molecular genetics of <i>Arabidopsis</i> development
Shan, Libo	5132 BSB	liboshan	Mechanisms underlying pathogen pattern recognition and signaling via immune receptors in plants
Simmons, Lyle	5068 BSB	lasimm	Gene function, mutagenesis, cell responses to DNA damage, antibiotic resistance
Stockbridge, Randy	3242 BSB)	stockbr	Anion export molecular mechanism
Vecchiarelli, Anthony	5260 BSB	ave	Subcellular organization mechanisms
West, Junior	3260 BSB	westjw	Transmembrane proteins, cellular junctions, cancer metastasis
Wierzbicki, Andrzej	5164 BSB	wierzbic	Mechanisms of ncRNA function in transcriptional gene silencing
Wittkopp, Patricia	4010 BSB	wittkopp	Evolution of development/gene regulation
Ye, Bing	5403 LSI	bingye	Neural network development and neurodevelopmental disorders, using both <i>Drosophila</i> and mice

## Standards of Conduct

*Graduate students are responsible for being familiar with and are held accountable to the standards in all applicable University policies. Please consult the U-M Rackham Graduate School's website frequently to ensure that you are aware of current policies.*

A clear sense of academic honesty and responsibility is fundamental to our scholarly community. To that end, the University of Michigan expects its students to demonstrate honesty and integrity in all their academic activities. Furthermore, students pursuing graduate education are being educated not only in a substantive field of inquiry but also in a profession. Although there are many common values, specific standards required of professionals vary by discipline, and this policy document has been written with respect for those differences.

As professionals in training, graduate students assume various roles, depending on the academic program. These include the roles of scholar/researcher, teacher, supervisor of employees, representative to the public (of the University, the discipline, and/or the profession), and professional colleague and even the role of provider of services to clients. Therefore, students are responsible for maintaining high standards of conduct while engaged in course work, research, dissertation or thesis preparation, and other activities related to academics and their profession. Because students take on multiple roles in multiple settings, some types of conduct are both academic and professional in nature—hence, the inclusive nature of this policy.

Graduate training, like future professional life, includes demands that might tempt some students to violate integrity standards. There are pressures on graduate students to achieve high grades, obtain financial support, meet research or publication deadlines, gain recognition from the scholarly community, and secure employment. Although faculty members can help students face and respond appropriately to these pressures, each student has final responsibility for maintaining integrity in his or her individual conduct.

Finally, conduct that violates the ethical or legal standards of the University community or of one's program or field of specialization may result in serious consequences, including immediate disciplinary action and future professional disrepute. In support of the Graduate School's commitment to maintain high standards of integrity, this policy makes provisions for bringing forward and hearing cases of academic and professional misconduct.

**All Rackham students should review the policies online or downloadable at this website:  
<https://rackham.umich.edu/academic-policies/>**

## Expectations

MCDB is committed to creating an inclusive, safe and welcoming department for everyone. It is our obligation to treat each other with dignity and respect, without harassment or discrimination. Recognizing and responding to incidents of harassment or discrimination is core to creating a workplace that is resistant to such behaviors. The **Change It Up!** program is encouraged for members of the MCDB community.

(<https://hr.umich.edu/working-u-m/professional-development/courses/change-it>)

## Reporting Resources

Resources are available for reporting incidents and behaviors that fall outside of the expectations for establishing a climate in our department of a friendly, inclusive, collegial, and supportive workplace. If you know of resources, please let the Graduate Studies Committee know so that they can be added to the list and distributed. In all cases, retaliation for reporting is forbidden and may be reported through the same channels as incidents of harassment.

- Rackham Resolution Officer  
(<https://rackham.umich.edu/about/directory/resolution-officer>)
- Rackham Graduate School Discrimination and Harassment - What to Do  
(<https://rackham.umich.edu/rackham-life/discrimination-and-harassment/>)
- LSA Diversity, Equity, and Inclusion  
(<https://lsa.umich.edu/lsa/dei.html>)
- LSA Academic Integrity website  
(<https://lsa.umich.edu/lsa/academics/academic-integrity.html>)
- U-M Office of Institutional Equity Harassment and Discrimination Reporting Form  
<https://hr.umich.edu/working-u-m/workplace-improvement/office-institutional-equity/harassment-discrimination-reporting-form>
- Sexual Misconduct Reporting and Resources  
(<https://sexualmisconduct.umich.edu/>)
- MCDB Ombuds  
Gyorgyi Csankovszki, [gyorgyi@umich.edu](mailto:gyorgyi@umich.edu)

# Your Graduate School Journey

## Registration Information for All Graduate Students

### Fall 2024 & Winter 2025 Academic Calendar • Ann Arbor Campus

- Registrar's site for Academic Calendars: <https://ro.umich.edu/calendars>
- [https://ro.umich.edu/sites/default/files/calendar/pdfs/Cal\\_2024-2025.pdf](https://ro.umich.edu/sites/default/files/calendar/pdfs/Cal_2024-2025.pdf)

### Registration Process

Wolverine Access is an online system that allows you to enroll from anywhere you can access the internet. To register for classes, you need your University of Michigan username and password. You will also need an appointment—you will receive an email notification for your appointment time on Wolverine Access.

**Your registration appointment** is the earliest date and time you can enroll for the term. You may not register prior to the date and time of your appointment.

Prior to your registration appointment, the system will take you to your Backpack. Once the date and time of your appointment pass, the Backpack/Registration link will take you to Registration. Note that you can register for classes without first putting classes in your Backpack.

Registration should occur **before** the first day of classes. If a \$50.00 late registration fee is charged if you register beginning the first day of classes.

After registering for your classes, you may make modifications to your class schedule at any time during the first three weeks of the term (drop/add deadline) using Wolverine Access.

Once you are a continuing student, you will get access to early registration for each term: November/December for winter term and in March/April for the following fall term. You should take advantage of that opportunity. Registration information and deadlines may be found on the Rackham website at: <https://rackham.umich.edu/navigating-your-degree/registering-for-classes/>

### Courses That Require Faculty Permission

Before you can register for a course that requires faculty permission, you must contact the instructor and MCDB Graduate Coordinator [Mary Carr, [carrmm@umich.edu](mailto:carrmm@umich.edu)] for an override. You can then go to Wolverine Access and register for the course.

### Credit System

Most courses at Michigan meet for one term and are given a value of three or four credit hours. Credit hours reflect the number of hours a student attends lectures each week during a four-month term. A course with three hours of lecture plus a discussion segment generally receives four-credit hours.

Helpful information, timelines, forms, and checklists are available on the Rackham website under “Navigating Your Degree.”  
<https://rackham.umich.edu/navigating-your-degree>

## Financial Considerations

Doctoral students and Pathways Master's students are funded throughout their studies with fellowships, graduate student instructor (GSI) and research positions. Traditional master's students may also become GSIs or find other funding. Be aware of the tax consequences.

### Tax Information

The general rule is that any income is subject to federal taxation, but scholarships and fellowships are excluded from taxation when the award is a qualified scholarship given to the degree-seeking recipient for the purpose of studying or conducting research at an educational institution.

Qualified scholarships and fellowships are defined to include tuition and fees required for enrollment or attendance at the educational institution and fees, books, supplies, or equipment required for courses of instruction at the institution. Expenses that are NOT tax exempt include room and board, travel, research costs, and equipment and supplies not required for enrollment. For tax purposes you must keep copies of all award notices and announcements. For items you wish to deduct, you must have receipts.

In general, students bear the tax burden; federal government agencies require students to determine taxation of scholarships and fellowships when filing annual income tax returns. The University of Michigan does not issue 1099 forms to scholarship holders.

#### Taxable Income

Besides direct payment funds of tuition, fees, and benefits, all income is subject to taxation and must be reported on federal and Michigan state tax forms, as well as any other forms according to your individual situation. This includes stipends, debit funds, and any other funding you receive from the university that isn't considered a qualified scholarship.

#### Withholding

Salary from any employment at the university (including GSIs, GSRAs, and GSSAs) is subject to withholding and the tax is paid to the IRS on your behalf throughout the year (withholding). For stipends and other funds not tied to employment (e.g., stipends received as part of a fellowship or other funding package), the university does not report the stipend on a federal or state form and does not withhold any taxes. This does NOT relieve the recipient from the obligation of reporting these amounts on his/her individual income tax returns and paying the tax liability on the taxable portion of the stipend.

***Learn more on Rackham's Finances site for graduate students:  
<https://rackham.umich.edu/rackham-life/finances/#tax-information>***

#### Direct Deposit

Most students opt to have their paycheck funds deposited directly into their bank account. Please see the payroll website to apply online for this direct deposit service.

#### Health Care

If MCDB is covering the cost of GradCare, you **must still complete** the GradCare forms. Enrollment forms for health care coverage are available online. Please see the University of Michigan Benefits Office website to submit the necessary information as soon as possible. (<https://hr.umich.edu/benefits-wellness/health-well-being/health-plans/gradcare>)



# The MCDB PhD Program

## MCDB General Timetable To PhD Conferral

Milestone	Normally completed by:
<b>Pre-candidate</b> 18 credit hours of course work Lab rotations – minimum of 2; additional rotations are possible Select permanent lab and mentor Complete prelim exam – Checkpoint 1	End of first academic year <b>March 15</b> of the first academic year; <b>May 30</b> if pursuing additional rotations <b>March 15 or May 30</b> End of first academic year – <b>First week in May</b>
<b>Candidate</b> <b>Advance to candidacy</b> <b>Form thesis committee</b> Hold first thesis committee meeting Dissertation Evaluation – <b>Checkpoint 2</b> Hold subsequent thesis committee meetings	<b>Beginning of second academic year</b> <b>December 1st of second academic year</b> Second semester, or summer of second academic year  At least once each academic year; more often as determined by committee

### Mentorship

The Graduate Studies Committee (GSC) of MCDB is available to advise each pre-candidate student with respect to courses, teaching, and laboratory rotations. The GSC will evaluate pre-candidate student progress until the student has identified a faculty member as a research mentor. At that time the research mentor, along with the GSC, will advise the pre-candidate student.



# Requirements for Doctoral Students in MCDB

## Courses

MCDB students take the following MCDB courses: MCDB 527, MCDB 528, MCDB 615, and MCDB 800. Courses are described in greater detail later in this document. Students may also elect to take additional courses that are appropriate for their goals and interests, in consultation with their mentors.

## Cognate Courses

In addition to MCDB courses, students need “cognate” course credits which are relevant to your work, but taught by a department other than MCDB. This requirement of the Rackham Graduate School recognizes the value of intellectual breadth in graduate education provided in part by formal coursework in fields of inquiry outside the student’s field of study. Students are required to satisfactorily complete (with a grade of B- or better) a minimum of 4 credit hours of graduate-level work in a field or fields other than the student’s field of specialization before being advanced to Candidacy. Some courses that MCDB students have taken in recent years to fulfill the cognate requirement are: Bioinformatics 524, 525, 527, 575; BioChem 665; BioStat 521; CEE 582; HumGen 803; Microbiology 612; Parmsci 607, 615, 640, 706; PIBS 550; Neurosci 525. If there are other classes that you find that you are interested in using as your cognate, please consult with the GSC to discuss the appropriateness.

The PIBS 503 course (see Responsible Conduct of Research below) is counted as a one-credit cognate course towards this requirement and **MUST** be taken in the fall term. You **MUST** complete your 4 cognate credits by the end of the second semester of your first year.

If a student has completed graduate coursework elsewhere that may be considered as a cognate course, he/she may request that the course be considered a cognate “in spirit.” The MCDB Graduate Coordinator can provide further details. A “cognate in spirit” may not be used to meet minimum credit hour requirements toward the doctorate.

## Responsible Conduct of Research

As federally mandated, students will receive training in the responsible conduct of research early in the MCDB program. This training is a mixture of podcasts, online training, panel discussions, informal debates, and small group meetings. Typically, MCDB students get this training through a course, PIBS 503. Students should take this course in the first fall semester.

## Research Rotations

The major activity for a PhD student is to complete a substantial body of scholarly research and describe this research in the doctoral thesis. This research is carried out under the supervision of a research mentor (the PhD advisor) and typically requires 4-5 years. More details about rotations are in the section for first year students.

## Funding and Appointments

Students in the Molecular, Cellular, and Developmental Biology PhD program receive up to five years of financial support that includes tuition, a full stipend, and health and dental insurance. This financial support remains in place through the entire program as long as the student continues to make good progress toward the degree (including timely advancement to candidacy).

**The main types of financial assistance for doctoral students are:**

- Fellowships
- Research funding: Graduate Student Research Assistantship (GSRA)
- Teaching: Graduate Student Instructorship (GSI)

## Appointments Compared

Differences among Fellowship, Graduate Research Assistant, and Graduate Instructor Support

	<b>Fellowship</b>	<b>GSRA</b>	<b>GSI</b>
<i>Status</i>	Non-Employee	Employee	Employee
<i>Timing of Pay</i>	Student financial timeline	Last working day of the month	Last working day of the month
<i>Taxes</i>	None withheld; student is responsible	Withholding for employee	Withholding for employee
<i>Insurance</i>	GradCare	GradCare	GradCare
<i>Reimbursement</i>	See the MCDB Graduate Coordinator	Use Shared Services	Use Shared Services

## Fellowships

Fellowships provide valuable additional support for some students. Some types of fellowships:

**MCDB First Year Fellowships:** These fellowships are offered to students admitted to MCDB directly during their first year in the program.

**PIBS:** Students admitted through the PIBS program are supported by a PIBS fellowship the first ten months of their first year.

**Rackham Merit Fellowship:** offers a special funding package to promote the values of diversity and inclusion by encouraging the admission and funding of students who represent a broad array of life experiences and perspectives. Graduate students do not apply for this fellowship but are nominated by faculty upon admission into the program. Only U.S. citizens, permanent residents, and undocumented students with Deferred Action for Childhood Arrival (DACA) are eligible for this award.

## Research Funding

The availability of research funding varies between research groups. Some funding sources are given to very specific projects, while other research grants are much more flexible. Because of this and other factors, there is no strict rule for how much research funding students receive. Students are therefore encouraged to discuss funding expectations with prospective advisors.

## Teaching

Each student is required to serve as a Graduate Student Instructor (Teaching Assistant) for two terms prior to receipt of a doctoral degree. Typically, students serve as a GSI for one term in their second year and then another term after the second year. Graduate student instructors who are teaching for the first time are required to take MCDB 801-Supervised Teaching. Students who are awarded internal or external fellowships delay their teaching until they come off their fellowship.

## Taxes

Depending on the type of appointment you have, the university may or may not deduct taxes from your paycheck, but ***your stipend is always taxable***. If taxes are not withheld from your paycheck, you still must pay taxes on that income. Note that while domestic students may not have taxes deducted, international students may. Learn about quarterly estimated tax procedures. Please refer to Rackham Graduate School's Tax Information.[<https://rackham.umich.edu/rackham-life/finances/#tax-information>]

## Other Funding Opportunities

All graduate students in the department are highly encouraged to apply for other sources of support for which they are eligible. Graduate students should work closely with their faculty advisor to identify appropriate funding sources and to prepare strong funding applications.

Rackham Funding Information: <https://rackham.umich.edu/funding/>



## Mentoring Procedures and Policies

The Department aims to promote effective mentoring of graduate students throughout your studies. Each cohort will meet annually with the Associate Chair for Graduate Studies. These sessions provide an excellent opportunity to address timelines and goals for the academic year relevant to a cohort, and to assist in selecting graduate student volunteers for Department committees.

Group mentoring sessions are augmented by extensive individual mentoring from your selected thesis advisor. Also, the Individual Development Plan (IDP) is intended to foster productive communication between the mentor and student. IDPs must be updated yearly for students to remain in good academic standing and are to be completed by September 1st of each year. Opportunities for annual feedback from your thesis committee are built into your doctoral studies through yearly thesis committee meetings, as well as through the IDP.

Your most valuable and most frequent mentoring will occur individually between you and your thesis advisor. While we cannot suggest any single format or guide for this type of mentoring, we do suggest some discussion topics to aid in this process. These topics are intended strictly to facilitate effective communication between you and your thesis mentor. This is not a rigid document or agreement.

### Possible Topics to Discuss Between Mentor and Student

*(adapted from forms developed by the Institute for Health Policy Studies/Institute for Health and Aging Fellowship Program)*

Here are some potential topics for discussion regarding the structure of the working relationship during the student's tenure in the laboratory. We hope that these discussions lead to an interactive and effective understanding between students and mentors.

- 1. Student/mentor one-on-one meetings:** Many students benefit from regularly scheduled meetings, for example, weekly on Wednesdays, or first and third Thursdays, etc.
- 2. Frequency of student participation in group meetings:** Plan the frequency with which students will participate in research or policy group meetings.
- 3. Identify professional meetings beneficial for the student.**
- 4. Tentative topics for papers on which the student will be an author.** Discuss topics and likely order of student's authorship, e.g., first, second, etc.
- 5. Student's role on each project.** Discuss his/her primary areas of responsibility, such as overseeing analyses, performing analyses, helping conceptualize study, working with technician to conduct analysis of particular research question, interviewing, drafting a manuscript, etc.
- 6. Other areas related to the joint working relationship:** the student's schedule; student absences; any unusual arrangements for computer equipment, space, or other resources; etc.

## First-Year Students: Courses and Academics

### Course Requirements

A typical student will take the following sequence of courses. Any alteration must be approved in advance by the Graduate Studies Committee. It is expected that students will maintain a 3.0 GPA, which is a “B” average, and will not receive less than a B- in any course.

#### YEAR 1, FALL TERM

- **MCDB 527 Molecular Biology:** This course is a graduate section of MCDB 427. It covers all aspects of molecular biology to establish the core foundational education in MCDB. It also emphasizes appropriate experimental design, strategies, and it aims to help students learn to effectively read and critically evaluate research papers. Course topics will be tested in the Preliminary Checkpoint #1 exam at the end of the first year.
- **Cognates:** ONE 3-credit course: Biological Chemistry 550 (Protein Structure), Cell and Developmental Biology 530 (Cell Biology), or Human Genetics 541 (Gene Structure). Or Neuroscience 611 (Neuropharmacology), 612 (Neural development), and/or 613 (Circuits/Comp NS), (1 credit each for a total of 3 credits.) These are examples of cognate courses that fulfill the 3 additional cognate credits needed to advance to candidacy.
- **MCDB 800:** Weekly Department Seminars. One-hour seminars include speakers from other institutions and help students broaden their understanding of MCDB research. Attendance is mandatory for all first-year students and highly recommended for second year students. Attendance is kept to verify compliance and for grade assignment.
- **Research Rotation\*:** Students will complete one (full) or two (half) research rotations in the Fall term. **Students are required to rotate in labs where the PI has an appointment in MCDB.** If students wish to rotate in labs outside of MCDB the students would need to change to a different graduate program. *\*Rotation requirements waived for students admitted directly into a particular MCDB lab.*
- **Research Responsibility Course:** MCDB students and MCDB primary PIBS students will take PIBS 503, which covers issues in research ethics. PIBS 503 is a one-credit course and counts towards the requirement for four cognate credits.

#### YEAR 1, WINTER TERM

- **Research Rotation\*:** Students will complete one (full) or two (half) rotations in the Winter term. Students can select a permanent mentor on March 15, unless they choose to continue rotating, in which case the permanent lab could be selected at any time with a deadline of May 30. *\* Rotation requirements waived for students admitted directly into a particular MCDB lab.*
- **MCDB 528 Cell Biology:** This course is a graduate section of MCDB 428 and is a core component of the curriculum for MCDB students. It also emphasizes appropriate experimental design, strategies, and it aims to help students learn to effectively read and critically evaluate research papers. Topics in this course will be used during the Preliminary Checkpoint #1 exam at the end of the first year.
- **MCDB 600, cognates or other course:** A “journal club” style course to develop critical thinking and primary literature evaluation skills is highly recommended.
- **MCDB 800:** Weekly Department Seminars. **Attendance is mandatory for all first-year students and highly recommended for second-year students.** Attendance recorded to verify compliance and for assigning grades.

## Research Rotations

The major activity for a PhD student is to complete a substantial body of scholarly research and describe this research in the doctoral thesis. This research is carried out under the supervision of a research mentor (the PhD advisor) and typically requires 4-5 years.

To assist in identifying a research mentor, **MCDB students are required to conduct at least two research rotations with MCDB faculty during their first year.** Rotations are arranged by individual MCDB graduate students, based on their own research interests and goals, through discussions with their prospective rotation mentors. Typically, students perform one or two rotations per semester.

### How to register for a rotation

Register for your rotation using the appropriate course number: MCDB 700 course for MCDB students or the PIBS 600 course for Program in Biomedical Science (PIBS) students. If you rotate in more than one lab during a semester, you should register for MCDB 700 with each faculty member. Students admitted via PIBS who have designated MCDB as their primary choice will follow the PIBS rules and guidelines regarding research rotations during their first year and should register for PIBS 600.

### Role of the Rotation Mentor

The rotation mentors and research advisors take an active role in the student's education and training toward becoming an independent investigator. In addition to technical training in the laboratory, the rotation includes training on formulation of a research plan, analytical and critical interpretation of the student's research results, critical analysis of reports in the literature, and oral and written presentation of scientific materials. The rotation mentor evaluates and grades the performance of the students, and these evaluations are placed in the student's file.

### Timing for Selecting A Lab

The earliest date that a faculty member can extend an offer of a position in the faculty's laboratory to a rotating student is **March 15** of the student's first academic year. The earliest date that a rotating student can request a position in a given laboratory is **March 15** of that student's first academic year. A student must complete at least two different rotations before selecting a lab.

*Note: Occasionally, students are admitted directly into an MCDB lab and are not required to conduct rotations but are highly encouraged to take advantage of these opportunities during their first year. Please talk with the GSC Chair for more insight.*

## Rotation Pointers

*adapted from Scott Barolo (UMICH PIBS Director) and Matt Chapman (MCDB Associate Chair, Graduate Studies)*

- 1. Get out of your scientific comfort zone.** You're being supported to try new things this year, probably for the last time in your career — so try new things! Jump into a research area that sounds interesting but that you don't know much about. Even if you end up not joining that lab, you will learn a lot, make new connections, and maybe spark future collaborations.
- 2. Communicate!** Discuss expectations and goals with your rotation mentor and lab mates. Good communication prevents many, many, many problems. Good mentors & good mentees teach each other how to communicate well as a pair.
- 3. Do your best in every rotation,** whether you expect to join that lab or not. Trust me: for at least three very good reasons, you should never do a half-hearted job in a rotation, even if you're sure you won't join that lab. Learn what you can from the experience, be professional, and always make them miss you when you leave.
- 4. Read papers,** especially your rotation lab's recent ones. Think about them. Ask about them. Try to make connections. This may be awkward at first. Sounding awkward and ignorant is far, far, better than sounding disengaged and complacent. We'll have classes on how to efficiently read papers

5. **Take lab safety seriously and be a good lab citizen.** Lab members often have a say in who will get an offer to join their lab. Nobody wants to share a bay with a slob, reagent-hoarder, chemical-waste menace, or centrifuge-exploder.
6. **Demonstrate your value as a lab colleague.** Talk to people. Be curious, interested, and friendly. Offer to help.
7. **Ask questions!** Scientists want to work with curious colleagues who are here to learn.
8. **If you don't understand something, say so.** Not getting things right away is fine. But your mentor needs to know that when you don't understand something, you'll try to change that. People who won't admit ignorance don't learn or improve over time.
9. **Make mistakes!** But try not to make the same mistake twice. If you don't make mistakes in a new lab, you're probably not trying very hard, and you're probably not learning much. What matters is how you deal with screw-ups, how you take responsibility for them, and what you learn from them.
10. **If your rotation isn't going well,** or if you don't feel welcome, safe, and respected in the lab, talk to someone about it—like Graduate Studies Chair, for example. We can strategize about how to either improve the situation or end the rotation. If the lab environment is unsafe or hostile, we will get you out of there immediately.
11. **Remember that you're not just being evaluated by the mentor and the lab—you're evaluating them, too,** as a potential training environment for you. Don't sell yourself short! You're here because we know you have a LOT to offer. Shop around, seek advice, and find the best lab for your interests, training needs, and career goals. Don't accept the first offer out of insecurity.

Some example discussion points to have with PIs before deciding on joining their group are:

- What are past trainees from the lab doing now and are there ones that you can talk with to learn more on what their experience in the group was?
- What is the PI's mentoring style (hands on, hands off, positive reinforcement, negative reinforcement, etc?)
- Does the lab have a policy about how GSI teaching is handled? Does the PI expect that you might have to teach more than 2 times? If so, will this be your choice?
- What are the current and projected funding levels in the lab?
- Does the lab have a vacation policy?
- What are the expectations for graduate students in the lab regarding meeting with the PI, publications, attending scientific conferences, working hours, etc.?
- Does the PI support non-academic career path interests?
- How are conflicts handled in the lab?

(Many more things could be discussed—the more you have information and communication about these issues, the more it will help guide your lab choice decision.)

12. **If you decide you don't want to join a lab you've rotated in:** Congratulations! You learned something very valuable from that rotation, and avoided joining a lab that would have been a bad fit for you. This is exactly what rotations are for.
13. **What to do if a rotation mentor wants to take you as a PhD trainee.** If you're interested in joining, let the mentor know you're interested — but to give other students a fair chance, you can't agree to join the lab until March 15th or later. If you aren't interested in joining the lab, thank the mentor for their time and effort and for the learning opportunity, but politely let them know that another lab seems like a better fit for you. If the faculty member is disappointed by your decision, that's a compliment to you! Faculty almost always handle this disappointment very well; they understand that it's best for students to be in the training environment that's the best fit for them. And in the unlikely event that they don't react professionally, aren't you glad you didn't say yes?

## Preliminary Examination [Checkpoint 1]

To demonstrate that students are qualified to proceed in the PhD program, first-year MCDB students are given a preliminary examination at the end of the Winter term. This examination is based on concepts and experimental design learned in MCDB 527 and MCDB 528. Students are also expected to be able to read and understand material in research papers, including the background and experimental methods. The preliminary exam is oral and will be administered primarily by members of the Graduate Studies Committee. The GSC will communicate the rationale, expectations, and other specifics of Checkpoint 1 to students in the months before the exam.

## Candidacy

The MCDB Graduate Studies Committee determines whether to recommend students for advancement to candidacy. This decision is based upon the performance of the students in the preliminary exam (Checkpoint 1), their individual research rotations, their course work, and their performance as a GSI, if applicable. The GSC will file a report of its recommendations for discussion by the full faculty of MCDB. The report will be forwarded to the of the MCDB chair for final action, which would normally lead to candidate status being awarded, beginning in the fall term of the second year.

A Candidacy Certificate will be issued when it is determined that the student has completed all requirements for the doctorate except for the dissertation. In addition, the combined department and Rackham requirements for candidacy include:

- Submission of an official undergraduate transcript with the degree posted
- Satisfactory completion of any course deficiencies (prerequisites to program)
- Completion of all required graduate coursework (other than 995)
- Completion of at least 4 hours of cognate coursework with at least a B average
- A minimum GPA of 3.0 (“B” average)

## Individual Development Plan [Idp]

To facilitate extensive and open communication between mentor faculty and students, first-year MCDB students will complete an Individual Development Plan (IDP). The IDP is intended to track student accomplishments, goals, and performance during the year, with direct feedback and input from mentor faculty. Importantly, the IDP provides an opportunity to discuss with your faculty mentor/s your strengths and weaknesses and how to position yourself to turn the weaknesses into strengths. The IDP also provides a platform to discuss what you need from your mentors to succeed. Every student/mentor relationship is unique, but establishing and maintaining strong communication is essential to success. Students will first complete the IDP form in late April of their first year, together with their research mentor. The IDP is intended to be updated and modified yearly, requiring input from both the student, mentor, and thesis committee. Completed IDP forms will be sent to the MCDB Graduate Coordinator and will be kept in confidence. IDPs must be updated yearly for students to remain in good academic standing and are to be completed by September 1st of each year.



## First-Year Students: Finances

### Stipend

First-year PhD students are appointed to department fellowships. For this academic year (2024-2025), the stipend is \$41,308.50. The monthly stipend will be \$3,442.38. As fellowship recipients, students are not considered employees of the University and therefore the pay dates will differ from University employees.

For this academic year, the pay dates for PhD students will be:

Fall 2024	Winter Term 2025	Spring-Summer 2025
9/23/24	1/27/25	5/19/25
10/21/24	2/24/25	6/16/25
11/18/24	3/24/25	7/14/25
12/13/24	4/21/25	8/11/25

### Direct Deposit

Most students opt to have their paycheck funds deposited directly into their bank account. Please see the University of Michigan payroll website (<http://www.finance.umich.edu/finops/payroll>) to apply online for this direct deposit service.

### Health Care

Enrollment forms for health care coverage are available online. Please see the University of Michigan Benefits Office website to submit the necessary information as soon as possible. (<https://hr.umich.edu/benefits-wellness/health-well-being/health-plans/gradcare>)

### Off Campus Notice

If you plan to leave campus for more than 48 hours during a work week, please notify the Graduate Studies Committee prior to your departure. This will provide us with your contact information in case of an emergency.

### Tax Information

As fellowship recipients, PhD students will **not** have income taxes withheld from their paychecks. This means that students will be responsible for paying these taxes when they file their annual income tax in April. To avoid additional fees, *students should plan to pay estimated taxes during the year*. Consult the University of Michigan Payroll Office website for information on taxation and estimated tax payments. Visit: <http://www.finance.umich.edu/finops/payroll/>. International students can find information at: <http://www.finance.umich.edu/finops/payroll/foreign>.

***Learn more on Rackham's Finances site for graduate students:  
<https://rackham.umich.edu/rackham-life/finances/#tax-information>***

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## Second-Year Students

<i>Fall Term</i>	<i>Winter Term</i>
MCDB 615 = 3 credits	MCDB 995= 8 credits
MCDB 995 = 8 credits	MCDB 800 = 1 credit
MCDB 800 or 801 = 1 credit	MCDB 600 = 1 credit

**\*\*\*Please note: you cannot take more than 12 credits a term \*\*\***

### Course Requirement

MCDB 615: This course is offered in the Fall term and is intended for second-year students. MCDB 615 teaches students how to prepare research proposals and the appropriate design of experiments. A principal focus is to prepare students for their Dissertation Evaluation (Checkpoint 2), which they typically will take in the Winter term of their second year. Students are not allowed to have their advisor read or evaluate their MCDB 615 proposal.

### Teaching

Each student is required to serve as a Graduate Student Instructor (Teaching Assistant) for two terms prior to receipt of a PhD degree. Typically, students serve as a GSI for one term in year 2 and then another term after the 2nd year. MCDB 801-Supervised Teaching: Graduate student instructors who are teaching for the first time are required to take this course. Students who are awarded internal or external fellowships delay their teaching until they come off their fellowship.

### The Dissertation Committee

The dissertation committee is charged with the supervision of a candidate's dissertation work. It should guide and encourage the student in the design and execution of the research program and in the writing of the dissertation. Committee members must file evaluations of the dissertation and certify if the student has passed the oral examination and has produced a dissertation that is satisfactory in every way.

Second-year students, in consultation with their thesis mentors, will decide on the composition of their dissertation committees. Committees consist of at least three MCDB faculty members (including the student's mentor/s), plus at least one cognate member (faculty member at UM, but not in MCDB). The student will submit the dissertation committee membership form within three months after advancement to candidacy, **usually by the end of November of their second year**.

The student chooses a chair or co-chairs that will act as the primary director of the student's research. Together they choose other faculty who may be expected to supply a high degree of expertise in the special area of the dissertation.

For details on faculty eligible to serve on dissertation committees, see the online guidelines linked under "Navigating Your Degree" on the Rackham website.

(<https://rackham.umich.edu/faculty-and-staff/dissertation-committees/guidelines-for-dissertation-committee-service/>)

## Dissertation Evaluation (Checkpoint 2)

The first meeting of the student's dissertation committee will be a dissertation evaluation (Checkpoint 2), designed to assess the student's progress in the PhD program and determine whether they are qualified to proceed in the program. This meeting is to occur within 6-9 months after advancement to candidacy (typically, March-June of the second year).

Students are expected to prepare for the dissertation evaluation throughout years 1 and 2 by reading primary literature, discussing scientific issues with mentors/colleagues, engaging in appropriate coursework, and by performing relevant laboratory research.

In advance of the dissertation evaluation, the student will prepare and submit a dissertation proposal (R21 style) to the members of their dissertation committee. Immediately before the dissertation evaluation meeting, the student will present a public talk that describes the background, preliminary research findings, and major future aims of their proposed thesis project. At the dissertation evaluation, the committee members will examine the student's knowledge of the proposal topic and their ability to defend their central hypothesis and aims. Students who pass the Checkpoint 2 will receive approval from their dissertation committee to continue with their dissertation research.

## Financial Considerations

Typically, second-year students teach and serve as graduate student instructors (GSIs) in the Fall semester and are GSRA's (Graduate Student Research Assistants) in the Winter semester. It is important that second-year students teach in one semester of the second year. As either GSIs or GSRA's, Second-year students are employees of the University and as such, the paydays will fall on the last working day of the month.

## Health Care

As a GSI or GSRA, students are eligible for health care coverage. You **must complete the appropriate forms** to choose a plan and initiate coverage. If you do not complete the forms, selection will default to no coverage. Contact the Graduate Coordinator with questions.

(<https://hr.umich.edu/benefits-wellness/health-well-being/health-plans/gradcare>)



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## Students Beyond the Second Year

### Annual Committee Meetings

Annual meetings of the thesis committee are mandatory for all doctoral students in their third year and until the defense is completed. At the meeting, the committee chair and/or co-chairs must summarize the student's progress on the Dissertation Committee Meeting Form (obtained prior to the meeting from the Graduate Coordinator) and the student must sign the form indicating that he/she has reviewed their comments. The form must then be submitted to the Graduate Coordinator. The Dissertation Committee will be responsible for reporting to the Graduate Affairs Committee whether the student is making satisfactory progress toward completing the PhD.

### Research Presentation

MCDB Doctoral students are required to make at least one oral presentation of their research (aside from the dissertation defense seminar) to a broad audience at some point during their time as a PhD student. This requirement is normally satisfied by a public talk given by the student immediately prior to their dissertation evaluation in Year 2, but it may also be satisfied by giving a research talk at a scientific conference, at the annual Departmental retreat, in a multi-lab research club, or another academic venue. It *cannot* be satisfied by giving a lab meeting research seminar.

### Travel To Scientific Meetings

MCDB encourages students to participate in the discussion and dissemination of recent research findings through attendance at local, regional, and national scientific meetings. MCDB provides a contribution of up to \$650 per academic year for second, third, fourth, and fifth year students for student travel to these meetings. Request this money using an form obtained from the Graduate Coordinator. Students must present a poster or research talk at the meeting and must request these funds prior to the meeting. Receipts are to be submitted for reimbursement by the student within 15 days of returning from the meeting via the SSC-FIN-Expense e-form from the Shared Services Center. In addition to the departmental money, students are strongly encouraged to apply for the Rackham Travel Awards and the Rackham Research Awards. More information on these will be found on the Rackham website.

### Dissertation Preparation

Upon completion of research, students write a dissertation in accordance with the requirements of the Rackham Graduate School. The Rackham website offers explicit directions for preparing your dissertation in the dissertation section of Navigating Your Degree.

See: <https://rackham.umich.edu/navigating-your-degree/>

We do not seek to reproduce these guidelines here, but it is particularly important to bear in mind the following point regarding the inclusion of published work in the dissertation and copyright.

### Use of Copyrighted Materials In Your Dissertation

Students are required to receive written permission from the copyright owner for any material used in the dissertation that falls outside the guidelines of "fair use," and are responsible for full compliance with proper use of copyrighted material. Availability of materials on the internet does not change copyright status. Copyright law protects original works of authorship in any medium of expression and



including long quotations from pre-existing materials; reproduced publications even if you are the author of the original work; unpublished materials; poetry and music lyrics; dialogue from a play, screenplay, broadcast, or novel; music; graphic or pictorial works; computer software; and sources on the internet.

Students should retain full documentation of every instance for which they have received permission to use copyrighted material.

For information about copyrighted material, fair use, and help obtaining permissions, visit the University of Michigan Library copyright services.

See: <https://www.lib.umich.edu/research-and-scholarship/copyright-services>

### **Oral Defense**

Once the dissertation is read and approved by the committee members, the student must present an oral defense of the dissertation. The Rackham website has timelines, guidelines, and more in the Oral Defense section of Navigating Your Degree.

See: (<https://rackham.umich.edu/navigating-your-degree/>)

### **Publishing the Dissertation**

The Rackham Graduate School requires that every doctoral dissertation and abstract be published. Students will sign an agreement to make the dissertation available in print and online. If desired, dissertations may be embargoed. See the URL above for guidelines.

### **Seven-Year Limit**

The general progress of individual students in graduate work is monitored annually by the Graduate Studies Committee. A student must complete all doctoral work within seven consecutive years from the date of first enrollment in the Rackham degree program.

## Policy on Student Employment Outside the Program

MCDB faculty believe that PhD training is a full-time endeavor. Outside employment subtracts from the time and mental energy students can devote to their research. Consistent with standard National Institutes of Health (NIH) policy, PhD students may not be employed outside their training program. No student in the MCDB program may be employed outside the program without permission of both the mentor and the Graduate Studies Committee.

## Absences, Leaves, Vacations Policy

### Absences

Participation in the MCDB program, without regard to the source of financial support, is to be full time; that is, 12 months per year. Participation includes regularly scheduled program events and registration in the graduate school for relevant course work, directed research, and dissertation research. Other relevant activity such as detached study, or other off-campus course work or research may be taken with the approval of the Graduate Studies Committee (for pre-candidates) and the student's research mentor (for both pre-candidates and candidates). Any other activity is viewed as personal and may be undertaken subject to the policy covering leaves.

### Leaves

Because students in PhD programs are required to be continuously enrolled, they may ask for a temporary leave of absence when certain life events make it impossible to continue active participation in the degree program. A leave will be granted to students for illness or injury, to provide care or assistance for family and dependents, to meet military service obligations, or for other personal reasons.

A student is strongly encouraged to discuss the impact of a leave on the plan of study with the chair or director of graduate studies and the faculty advisor and develop a strategy for completing the degree program.

US immigration regulations may restrict the eligibility of an international student for a leave of absence. International students considering a leave of absence must consult with the International Center.

### Services Available to Students on Leave

[https://rackham.umich.edu/downloads/ce\\_support\\_services.pdf](https://rackham.umich.edu/downloads/ce_support_services.pdf)

See the Rackham website for all the policies and procedures for a leave.

<https://rackham.umich.edu/academic-policies/section2/#2-2-2>

<https://rackham.umich.edu/navigating-your-degree/leave-of-absence/>

## *Vacations*

Graduate students are entitled to University-designated holidays. Additionally, subject to the discretion and explicit approval of the Graduate Studies Committee, first-year students may take up to one more week in the summer when they are supported by MCDB department funds. Prearranged total vacation time is NOT expected to exceed 2.5 weeks per year, including all University breaks and approved vacations. First-year students must consult with the Chair of the GSC **before** making any travel arrangements outside of University breaks. In particular, DO NOT purchase travel tickets without prior consultation with the GSC Chair. Once supported by their research mentor, students are allowed vacation time that includes University-designated holidays and up to two weeks of additional time. Prearranged total vacation time should NOT exceed 4 weeks per year, including all University breaks and mentor-approved vacations. The timing must be discussed with the mentor prior to making any travel arrangements. In particular, DO NOT purchase travel tickets without prior consultation with your mentor.

If necessary and under unusual circumstances, it is possible to take total vacation time in excess of 4 weeks per year. However, this requires a written request and approval from the student's mentor and the Chair of the GSC. This may be granted without financial support.



## Policy for Academic Progress, Unsatisfactory Academic Standing, and Dismissal from MCDB Doctoral Program

### Satisfactory academic standing at the pre-candidate level

- 1) To maintain satisfactory standing at the pre-candidate level, students must maintain a cumulative GPA of a 3.0 (B) or higher. If a student's GPA falls below the 3.0, the student will be placed on academic probation and given one term to obtain good academic standing.
- 2) All pre-candidate students must be actively engaged in laboratory rotations beginning Sept 1 through March 15. If a student chooses a lab on March 15, they are no longer required to perform laboratory rotations. If a student does not choose a lab on March 15, the student must be in a laboratory rotation. If a student is unable to find a laboratory rotation for more than two consecutive weeks from Sept. 1 through March 15 of the first year, the student will be placed on academic probation.
- 3) All students must identify a mentor by June 30 of their first year, with most students selecting a lab by March 15. If a student is unable to identify a mentor by June 30, the student will be placed on academic probation. If a student is unable to find a research mentor by August 15, the student will be dismissed from the MCDB graduate program.
- 4) Pre-candidate students must pass checkpoint #1 exam in the spring of their first year. If a student fails the checkpoint #1 exam they will be placed on academic probation or be dismissed from the graduate program after review and evaluation by the MCDB faculty. Failure of the Checkpoint #1 exam will result from deficiencies in reading and understanding the primary scientific literature.

### Satisfactory academic standing at the candidate level

Students are considered candidates after identifying a research mentor, after passing the checkpoint #1 exam, after maintaining a GPA at a 3.0 or higher and after review by the MCDB faculty. Below, are programmatic specific requirements to remain in good academic standing at the candidate level.

- 1) The student must pass the checkpoint #2 exam. If a student fails the checkpoint #2 exam, the student will be placed on academic probation or dismissed from the MCDB graduate program.
- 2) If removed from a lab, the student will be placed on academic probation. The student and the Associate Chair for Graduate studies will develop a timetable for identifying a new research mentor. The expected timetable should be no longer than one term. If the student is unable to identify a research mentor, within the specified timetable, the student will be dismissed from the PhD program.
- 3) Students will be responsible for holding an annual thesis committee meeting. If a student is unable to hold their committee meeting within 12 months of their previous meeting, the student must submit a written request for an extension to the Associate Chair for Graduate Studies. The student must cite the reason behind the extension request and ask for an extended period. If approved, the extension will be granted for no more than three months. If a student fails to hold a committee meeting within the extended period, the student may be placed on academic probation after consultation with their mentor and given one term to return to good academic standing.
- 4) The student must receive an "S" for "satisfactory" progress towards their degree in MCDB 995, as determined by their dissertation advisor. If a student receives a "U", the student will be placed on academic probation and given one term to return to good academic standing.



- 5) The student's progress at their annual committee meeting must be deemed as satisfactory by the thesis committee. If the thesis committee determines that the student's progress is unsatisfactory the student will be asked to schedule another meeting within six months. If progress after the six-month meeting is deemed satisfactory the student will return to a schedule of annual committee meetings. If the student's progress is still deemed unsatisfactory, the student will be placed on academic probation and given one term to have a committee meeting. After the meeting the dissertation committee will determine if the student will return to good standing, be dismissed from the MCDB program or receive an M.S. degree after returning to good academic standing in the MCDB M.S. program.

### **Options for re-taking qualifying or candidacy exams and the consequences for failure.**

Students who fail the Checkpoint #1 or Checkpoint #2 exam will be placed on academic probation. The students will either be allowed to retake the exams or be dismissed from the graduate program. The result to dismiss would be a recommendation from the exam committee that would be reviewed and upheld by the graduate studies committee or the MCDB faculty in the case of Checkpoint #1. For students allowed to re-take Checkpoint 1 exam, the student will be given up to three months to re-take the exam (i.e. by August 10). If the committee or the MCDB faculty determine the student's performance in the Checkpoint 1 exam was well below the expected standard, the student will be dismissed from the MCDB graduate program. For the Checkpoint #2 exam, it is expected that the student will re-take the Checkpoint #2 exam within three months. A student can submit a written request for an extension (maximally up to 12 months). All written requests will be sent to the Associate Chair for Graduate studies and evaluated by the MCDB Graduate Studies Committee. If a student fails the re-take of either Checkpoint #1 or Checkpoint #2 exam, the student will be dismissed from the MCDB doctoral program.

### **Placing a student on academic probation.**

In accordance with Rackham policy (3.5.2.1), the thesis advisor, graduate chair or program director may recommend that a student be placed on academic probation. The decision to place a student on academic probation must be made by a group of at least three faculty members and should include one or more of the following members: the department chair (or chair's designee), the graduate chair; the advisor; the graduate committee or another committee constituted of faculty.

### **Length of the probationary period**

Students will be placed on academic probation for one term. In accordance with the Rackham policy (3.5.2.2), students will be notified in writing that they have been placed on probation and will be given benchmarks that must be met to return to good academic standing. At the end of the term, a student will either return to good academic standing, be dismissed from the MCDB doctoral program, or placed on probation for a second term. Students will be allowed at most two consecutive terms to return to good academic standing or be dismissed from the MCDB doctoral program.

In accordance with the Rackham policy (3.5.2.2) The probationary period may be no shorter than two months of the fall or winter term and ordinarily conclude at the end of that term. For a student placed on probation within two months of the end of the fall term, the probationary period will extend into the winter term for a total of at least two months. For a student placed on probation within two months of the end of the winter term, the probationary period may include the spring or summer half-terms or the following fall term, for a total of at least two months. A student may be placed on probation starting in the spring or summer half term for a minimum of two months and does not need to be enrolled during these half terms.

## **Procedures for notifying students placed on academic probation and options for appeal**

In accordance with Rackham policy (3.5.2.3), the graduate chair must notify the student and Rackham OARD in writing before the probationary period begins, explaining the reasons and conditions of probation; the start and end dates of the probationary period; funding support; conditions, if any, for returning to satisfactory standing; and options for appeal. A student who has been placed on probation may request a leave of absence from Rackham or withdraw (sections 2.3.2, 2.2.3). The leave or withdrawal will stop the clock on the probationary period, which resumes when the student returns to active status or is reinstated. Probation will remain in effect until the conditions are remedied or the student is dismissed.

## **Funding a student on probation**

In accordance with Rackham policy (3.5.2.4), the level of funding for a student prior to probation must be continued through the probationary period.

## **Option to appeal academic probation or dismissal**

Students must be notified of options to appeal academic probation or dismissal. Students will have seven days to appeal the decision of being placed on probation or dismissal from the MCDB graduate program. The program should constitute a separate committee of review to consider appeals. Students may use the Graduate School's Academic Dispute Resolution process only for procedural issues of fair and equal treatment under the policy of the program, and not to appeal the academic reasons for the decision.

Students who fail to meet standards of academic or professional integrity or who have been found responsible for violations of other University standards of conduct may be dismissed in accordance with separate procedures described in Rackham Academic and Professional Integrity Policy (section 11).

## **Communication of procedures to all students**

The procedures of this policy will be recorded in the graduate student handbook and made available to all MCDB doctoral students.

# MCDB Master of Science Programs



# Pathways Master of Science Program

## Overview

Students begin the program in the summer preceding their first fall term.

Students must complete:

- 24 Rackham credits in MCDB and related areas, including a minimum of 16 credits of coursework and 8 credits of research (MCDB 700).
- Responsible Conduct of Research Course (e.g., PIBS 503 or MCDB 499) during their first year in the program.

Only graduate-level courses (400 level and above) may count towards the M.S. degree.

Courses offered by departments other than MCDB must be approved by the student's thesis advisor and the director of the Pathways Master's program before they are taken.

All courses will be selected in consultation with the student's research advisor and the program director.

Students are required to be a Graduate Student Instructor (teaching assistant) for a minimum of two terms during their program, typically the winter semester of the first year and the fall semester of the second year.

Students will be matched into research labs during the first summer. They will work in that research lab for 2 years, completing a research project that is of sufficient quality for a Master's thesis.

Students will defend their thesis in an open seminar, followed by an oral exam by their thesis committee.

Curriculum

## Thesis Committee

After a student and a faculty member have agreed on a project suitable for the thesis, the student will assemble a committee made up of the thesis advisor and two faculty members selected by the student in consultation with the advisor. The committee will meet with the student during the fall and winter terms to help the student and the advisor to keep research on track. The thesis committee will aim to advise and guide the student towards the degree completion. Reports of these meetings and the student's progress will be due to the Pathways Program Director and the Chair of Graduate Studies by the end of each term and will become a permanent part of the student's academic file.

**Thesis committee form** on the MCDB website:

<https://lsa.umich.edu/content/dam/mcdb-assets/mcdb-documents/masters-degree-forms/Committee-Meeting-Form-Pathways2022.pdf>

## Thesis Deadlines

Submit written thesis to committee not less than one week prior to defense. Thesis defense and final thesis committee meeting at the end of winter term must occur before May 1. Required revisions to thesis, if any, are due within two weeks after the thesis defense.

**Oral defense form** on the MCDB website:

[https://lsa.umich.edu/content/dam/mcdb-assets/mcdb-documents/masters-degree-forms/OralDefensesForm\\_Pathways.pdf](https://lsa.umich.edu/content/dam/mcdb-assets/mcdb-documents/masters-degree-forms/OralDefensesForm_Pathways.pdf)

## Departmental Retreat

The MCDB annual retreat is an excellent opportunity to meet faculty and students and to learn about the department research. Pathways Master's students are expected to attend this event.

## Pathways Timeline

### Year 1

#### Summer:

- Students will be matched with labs to find a thesis advisor and begin lab work.

#### Fall

- 3-4 credits of a 400 level or higher course
- 3-4 credits of research in a faculty member's lab (MCDB 700).
- 1 credit research responsibility course
- 1 credit MCDB 800 (seminars)
- Confirm thesis lab selection and continue thesis work.
- Form a committee of three faculty including the thesis advisor by October 1.

#### Winter

- GSI appointment
- 3-4 credits of a 400 level or higher course (may include cognate)
- 2-3 credits MCDB 700
- First committee meeting before April 30

### Year 2

#### Summer: Independent Research.

- Each student is expected to attend 1 professional meeting.
- Committee meeting before October 1.

#### Fall

- GSI appointment
- 3-4 credits of a 400-level or higher course
- 2-3 credits MCDB 700
- 1 credit MCDB 800

#### Winter

- 3-4 credits of a 400-level or higher course
- 3-4 credits MCDB 700
- 1 credit MCDB 800
- Submit thesis to committee a week before the defense
- Defense and final committee meeting before May 1

## Financial Considerations

Pathways Master's students are **fully supported** for the two years necessary to complete the program. Funding includes a stipend and tuition and fees. Healthcare for you, your spouse, and dependents is covered but you must complete the GradCare forms. See other financial information on page 15.

## Traditional Master of Science Program

MCDB's Master of Science Program is a flexible pathway that can be customized for the next stage of your career. Students have access to a diverse and challenging array of courses, seminars, and laboratory research opportunities. The traditional Master of Science degree offers either a research-based thesis track or a non-thesis track. However, Master's students in the non-thesis track can also conduct research in laboratories for course credit without completing a thesis.

### Advising

The MCDB Graduate Studies Committee (GSC) is responsible for the development and administration of the Master of Science Program. It is important that you seek advice from the committee during all phases of your Master's career. All members of the committee are available for advising, but students are asked to first contact the Graduate Program Coordinator or the committee chair for master's program advising. Students are responsible for scheduling an advising appointment once per semester.

For questions about the program, curriculum advice or any concerns you may have please contact:

**Mary Carr**, Graduate Program Coordinator, carrmm@umich.edu, (734) 615-1635 or

**Gyorgyi Csankovszki**, Professor, & Chair for Master's Advising, gyorgyi@umich.edu, (734) 764-3412

### Program Requirements

Students must complete 24 credit hours of approved coursework, with a minimum of 16 credit hours coming from MCDB courses. For courses to count toward your required 24 hours, they must be at the 400 level or higher. Up to eight credit hours of the required 24 can take the form of independent research (MCDB 700).

Master's students who lack required prerequisite courses below the 400 level may take these courses during their first two terms of enrollment, **but credit from these classes will not count toward the required 24 credit hours**. Students who lack prerequisites or are aware of curricular deficiencies are encouraged to address these issues as early as possible.

Students in the MCDB Master of Science Program must maintain an overall grade point average of 3.00, a "B" average.

The Rackham Graduate School ultimately governs the requirements for the attainment of a master's degree at the University of Michigan. This includes policies concerning the transfer of credit from other institutions. Though the graduate studies committee will do its utmost to advise you on these policies, **it is your responsibility to be familiar with the current Rackham requirements**. For Rackham Master's requirements, see Rackham's website: <https://rackham.umich.edu/academic-policies/section5/>

### Curriculum

The University of Michigan offers a variety of graduate-level courses taught by faculty who are leaders in their academic fields. We encourage you to explore many course choices available on the Ann Arbor campus and to choose those that will best prepare you for your future fields. Use these sites:

- Rackham website "Programs of Study" links to eligible courses.
- College of Literature, Sciences, and the Arts (LSA), including MCDB courses, online course guide: [lsa.umich.edu/cg/](http://lsa.umich.edu/cg/) Select "graduate" in the credit type.

- UM medical school departments offer many relevant graduate level courses. Find descriptions on the Program in Biomedical Science website.  
<https://medicine.umich.edu/medschool/education/phd-programs/about-pibs/pibs-curriculum>
- School of Public Health (SPH): Biostatistics, Environmental Health, Epidemiology, Health Behavior and Health Education courses may fulfill credit requirements. SPH course guide:  
<https://sph.umich.edu/admissions/courses/>

**MCDB 800** (MCDB Departmental Seminar) is a popular 1 credit MCDB course that can be taken every term. It consists of a weekly research seminar that features visiting biologists discussing a wide range of biological questions.

**Research Responsibility and Ethics:** MCDB 499 or PIBS 503 are 1 credit courses that fulfill this requirement.

## Research and Thesis Option

Though MCDB's master's program is not thesis-based, students who are interested in conducting laboratory research are encouraged to seek research opportunities in MCDB faculty laboratories. Up to 8 credit hours of the required 24 can take the form of independent research (MCDB 700). To pursue research in an MCDB lab, please contact research faculty directly.

Thesis option requirements are:

- assemble a committee of three faculty including their advisor (two MCDB faculty and one faculty member from another department also accepted)
- complete the thesis
- give a public seminar and a closed defense

## Standards of Conduct

Master's students are responsible for understanding and adhering to the academic and ethical standards of the University of Michigan.

## Financial Support

Though the MCDB master's program does not guarantee financial support, master's students are eligible for Graduate Student Instructor (GSI) and Graduate Student Research Assistant (GSRA) positions. Please note: MCDB's PhD students are given first priority for these positions. To inquire about GSI positions, please contact Kimberly Pavuk ([kimberlj@umich.edu](mailto:kimberlj@umich.edu)) in the Program in Biology Office. GSRA positions must be arranged directly with MCDB research faculty.

School loans and work-study programs are available through the University of Michigan's Office of Financial Aid: <http://finaid.umich.edu/>

Part-time positions are sometimes available at University of Michigan, though they vary in type and availability. See: <https://studentemployment.umich.edu/>

## Department Retreat

MCDB gathers yearly for a retreat, usually in the fall. This is an excellent opportunity to meet faculty and fellow students and to learn about department research. Master's students are encouraged to attend.

# Best Practices and Commitments for Graduate Students

*(Modified from original documents by the Graduate Research, Education, and Training (GREAT) group of the AAMC)*

## Graduate Student Commitments

**I acknowledge that I have the primary responsibility for the successful completion of my degree.** I will be committed to my graduate education and will demonstrate this by my efforts in the classroom and in research settings. I will maintain a high level of professionalism, self-motivation, engagement, curiosity, and ethical standards.

**I will meet regularly with my research advisor and provide him/her with updates on the progress and results of my activities and experiments.**

**I will work with my research advisor to develop a thesis/dissertation project.** This will include establishing a timeline for each phase of my work. I will strive to meet the established deadlines.

**I will work with my research advisor to select a thesis/dissertation committee.** I will commit to meeting with this committee at least annually (or more frequently, according to program guidelines). I will be responsive to the advice of and constructive criticism from my committee.

**I will be knowledgeable of the policies and requirements of my graduate program, graduate school, and institution.** I will commit to meeting these requirements, including teaching responsibilities.

**I will attend and participate in relevant group meetings and seminars that are part of my educational program.**

**I will comply with all institutional policies, including academic program milestones.** I will comply with both the letter and spirit of all institutional research policies (e.g., safe laboratory practices and policies regarding animal-use and human-research) at my institution.

**I will participate in my institution's Responsible Conduct of Research Training Program and practice those guidelines in conducting my thesis/dissertation research.**

**I will be a good research citizen.** I will agree to take part in relevant shared research group responsibilities and will use research resources carefully and frugally. I will be attentive to issues of safety and courtesy, and will be respectful of, tolerant of, and work collegially with all research personnel.

**I will discuss policies on work hours, sick leave, and vacation with my research advisor.** I will consult with my advisor and notify any fellow research group members in advance of any planned absences.

**I will discuss policies on authorship and attendance at professional meetings with my research advisor.** I will work with my advisor to submit all relevant research results that are ready for publication in a timely manner.