



Department of Molecular, Cellular,  
and Developmental Biology

# *Graduate Student Handbook*

Academic Year 2022-2023  
Fall 2022 Orientation

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## Welcome to the Department of Molecular, Cellular, and Developmental Biology

**Our scientists are broadly interested in how organisms, cells, molecules, and genomes function, develop, and evolve.** Despite the diversity of research in our department, MCDB members share technical approaches such as recombinant DNA, genetics, biochemistry, and specialized imaging. We also share a common intellectual direction that emphasizes mechanistic and experimental strategies to investigate a diverse set of biological problems.

This handbook provides a collection of resources and specific MCDB policies for our graduate students. The University of Michigan Rackham Graduate School provides an online step-by-step guide in “Navigating Your Degree.” <https://rackham.umich.edu/navigating-your-degree>

### A Few Useful Contacts

#### ***Staff Located on the 2<sup>nd</sup> Floor, C Tower of the Biological Sciences Building***

Carr, Mary	Graduate Student Coordinator	carrmm@umich.edu
Cihak, Anna	MCDB Chief Administrator	mcdkeyad@umich.edu
Duenas, Andrea	Executive Assistant	duenas@umich.edu
Tainter, Suzanne	web/publications/logos/photos	stainter@umich.edu

Program in Biology Staff (undergraduates services & Graduate Student Instructor assignments)  
Ecology and Evolutionary Biology Staff

#### ***Located in the Imaging Suite B140, BSB***

Sobocinski, Gregg	Imaging Manager/Specialist	BSBimaging@umich.edu
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#### ***Associate Chair for Graduate Studies***

Chapman, Matt	Professor	chapmanm@umich.edu
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“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, Ph.D.*

## Our Community

### First-Year MCDB Doctoral Students, Fall 2022

Name	e-mail Address		
Albright, Claire	ginnybee@umich.edu	Wheaton College	B.A.
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Jeon, UngSeop (Albert)	ujeon@umich.edu	Univ. of California-Irvine	B.S.
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Pandey, Sruti	srutip@umich.edu	Boston University	B.A.
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Shi, Wanjing	swanjing@umich.edu	Tsinghua University	B.S.
Wentworth, Katherine	kwentwo@umich.edu	Clemson University	B.S./M.S.
<b>PIBS Primary</b>			
McAvoy, Rebecca	mcavoy@umich.edu	Indiana University	B.S.

### Continuing MCDB Doctoral Students, Fall 2022

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### Pathways Master's Students, Fall 2022

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Srodawa, Kristy	ksrodawa@umich.edu	Huffnagle
Tran, Jeannine	tranjean@umich.edu	Chapman

### MCDB Master's Students, Fall 2022

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Yenglin, Steven	yenglins@umich.edu	

## MCDB Mentor Faculty

Akaaboune, Mohammed	647-8512	4160 BSB	makaabou	Neurobiology development; synaptic plasticity
Aton, Sara	615-1576	4268 BSB	saton	Systems & sleep neurobiology, nervous system plasticity
Bardwell, Jim	764-8028	5018 BSB	jbardwel	Protein folding
Buttitta, Laura	764-2802	5218 BSB	buttitta	Cell cycle regulation in <i>Drosophila</i>
Cadigan, Ken	936-3246	5210 BSB	cadigan	<i>Drosophila</i> development & signal transduction
Chang, Amy	647-7963	3218 BSB	amychang	Yeast cell biology
Chapman, Matt	764-7592	5268 BSB	chapmanm	Molecular physiology
Clowney, E. "Josie"	763-6036	4218 BSB	jclowney	Neural circuits of the <i>Drosophila</i> olfactory system
Cone, Roger	615-9787	3145 LSI	rcone	Regulation of energy storage by the nervous system
Csankovszki, Gyorgyi	764-3412	5214 BSB	gyorgyi	Dual roles of condensin complexes in <i>C. elegans</i>
DeSantis, Morgan	615-0610	4210 BSB	mdesant	Microtubule associated motor protein transport of cellular cargo
Duan, Bo	647-4359	4260 BSB	bduan	Neural circuits underlying sensory modalities
Duan, Cunming	763-4710	3268 BSB	cduan	Molecular animal physiology
Dus, Monica	763-4511	4214 BSB	mdus	Neural regulation of feeding behavior
Huffnagle, Gary	936-7934	3232 BSB	ghuff	Microbiology and microbiomes
Jakob, Ursula	615-1286	5014 BSB	ujakob	Biochemistry & molecular cell biology
Klionsky, Dan	615-6556	6036 LSI	klionsky	Protein targeting
Kumar, Anuj	647-8060	3210 BSB	anujk	Functional genomics/proteomics in yeast & <i>C. albicans</i>
Kwon, Sam	764-3558	4264 BSB	samkwon	Mechanisms underlying plasticity in mammalian brain
Lee, Tzumin		LSI	tzumin	Genetic principles of complex brain development in <i>Drosophila</i>
Li, Ming	647-7264	3214 BSB	mlium	Lysosomal function & protein quality control regulation
Miller, Ann	764-9732	5264 BSB	annlm	Cytokinesis regulation by Rho small GTPases
Nandakumar, Jayakrishnan	647-9152	5064 BSB	jknanda	Telomerase assembly/function
Nielsen, Erik	764-1324	5114 BSB	nielsene	Proper deposition of plant cell wall components
Schiefelbein, John	764-3580	5110 BSB	schiefel	Molecular genetics of Arabidopsis development
Simmons, Lyle	647-2016	5068 BSB	lasimm	Gene function, mutagenesis, cell responses to DNA damage, antibiotic resistance
Stockbridge, Randy	764-3631	3242 BSB	stockbr	Molecular mechanism of anion export
Vecchiarelli, Anthony	647-7251	5260 BSB	ave	Mechanisms of subcellular organization
Wang, Yanzhuang	936-2134	4110 BSB	yzwang	Molecular organization of Golgi apparatus
Wierzbicki, Andrzej	647-6841	5164 BSB	wierzbic	Mechanisms of ncRNA function in transcriptional gene silencing
Wittkopp, Patricia	763-1548	4010 BSB	wittkopp	Evolution of development/gene regulation
Wong, Kwoon	936-9547	326 Kellogg	kwoon	Non-image forming visual responses

## 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 is also committed to engaging the public through numerous 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 several 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 DEI website for the current committee, including graduate student representatives.

<https://sites.lsa.umich.edu/mcdb-dei/>

<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.



## 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 UM 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 to maintain academic integrity despite 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/>**

## Your Graduate School Journey

Helpful information, timelines, forms, and checklists are available on the Rackham website under “Navigating Your Degree.”

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

## Registration Information

### Fall 2022 & Winter 2023 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\\_2022-2023.pdf](https://ro.umich.edu/sites/default/files/calendar/pdfs/Cal_2022-2023.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.

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.

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.

After registering for your classes, you may make modification to your class schedule at any time using Wolverine Access until the third week of the term (drop/add deadline).

Once you are a continuing student, you will get access to early registration (November/December for winter term and in March/April for spring half, spring-summer, summer half, or the following fall term.). You should take advantage of that opportunity.

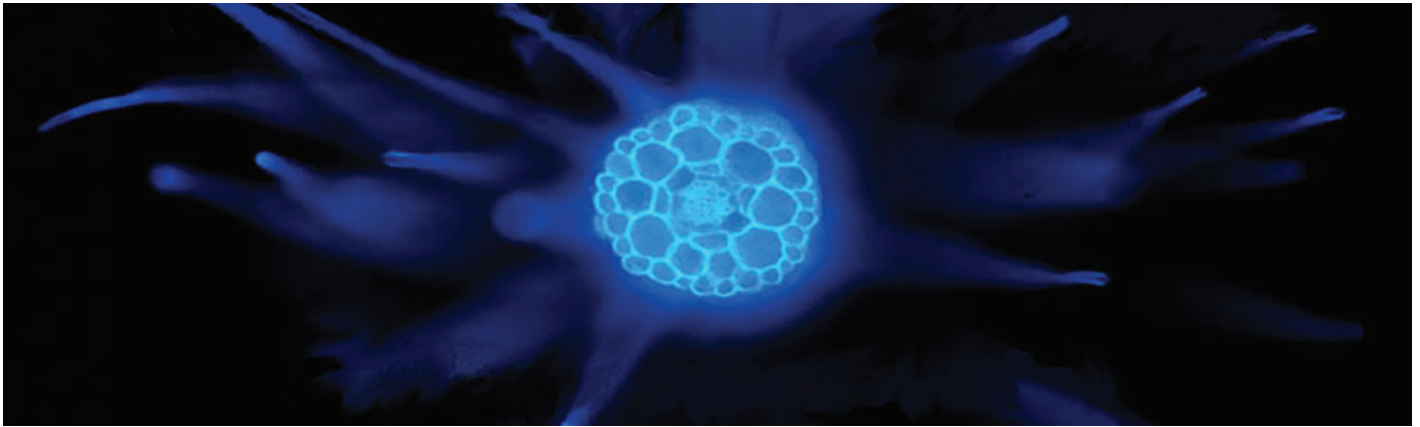
Registration information and deadlines may be found on the Rackham website at:  
<https://rackham.umich.edu/navigating-your-degree/registering-for-classes/>

## Courses That Require Faculty Permission

Before you may register for a course that requires faculty permission, you must be sure that the instructor has contacted MCDB Graduate Coordinator [Mary Carr, [carrmm@umich.edu](mailto:carrmm@umich.edu)] for an override. You must 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.



## PhD Program: MCDB General Timetable To Ph.D. Conferral

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

## Requirements for Doctoral Students in MCDB

### Mentorship

The Graduate Studies Committee (GSC) of MCDB will 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.

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 to select a lab on the early date of March 15.

### Research Rotations

The major activity for a PhD student is to complete a substantial body of scholarly research and to 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 students 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 the 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.

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.

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.

*\*Note: Occasionally, students are admitted directly into an MCDB lab and are not required to conduct rotations.*

### 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 if offered.

### 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. At no time may a student register for more than 12 credits.

*\*PIBS course requirements may differ.*

## Cognate Courses

In addition to MCDB courses, students take courses offered by other UM departments. This is a requirement of the Rackham Graduate School, which recognizes the value of intellectual breadth in graduate education that is provided in part by formal coursework in fields of inquiry that lie outside the boundaries of 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 (Human Genetics 541, Cell Biology 530, etc.).

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.

## 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 Concur	Use Concur

## 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.

## Taxes

Other than direct payment funds for 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 is not considered a qualified scholarship. \*Some scholarships and organizations pay for a student's tuition, fees, and benefits directly to the University rather than paying the student.

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 more quarterly estimated tax procedures. Please refer to Rackham Graduate School's Tax Information for Fellowship Recipients.[<https://rackham.umich.edu/rackham-life/finances/#tax-information>]

## 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.

## 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 Chair of 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: 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.
- **ONE** of the following cognate courses: Biological Chemistry 550 (Protein Structure), Cell and Developmental Biology 530 (Cell Biology), Human Genetics 541 (Gene Structure), or Neuroscience 611 (Neuropharmacology), 612 (Neural development), and/or 613 (Circuits/Comp NS), (1 credit each) are examples of cognate courses. This fulfills the 3 additional cognate credits needed to advance to candidacy.
- **MCDB 800:** Weekly Department Seminars. This one-hour seminar series includes speakers from other institutions and helps 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. Students cannot rotate in labs where the PI does not have an MCDB appointment. If students wish to rotate in labs outside of MCDB the student 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.



## Rotations

***At least two different rotations must be completed before selecting a permanent lab at the earliest date of March 15 of your first year. Students must rotate with MCDB faculty.***

## MCDB Department Retreat

Each year, MCDB holds a one-day research retreat designed to enhance interactions among the faculty, postdoctoral scientists, and graduate students. First-year graduate students are expected to attend this retreat to help them become familiar with the research and the personnel in the department.

## 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.

## Candidacy

The Graduate Studies Committee of MCDB 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 Graduate Studies Committee will file a report of its recommendations for discussion by the full faculty of MCDB. The report will be forwarded to the Chair of the MCDB Department 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. Students will first complete the IDP form in late April of their first year in the program, together with their chosen 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 Ph.D. students are appointed to Department Fellowships. For this academic year (2022-2023), the stipend is \$36,082.50. The monthly stipend will be \$2,935.88. 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 Ph.D. students will be:

Fall 2022	Winter Term 2023	Spring-Summer 2023
9/26/22	1/16/23	5/15/23
10/24/22	2/13/23	6/12/23
11/21/22	3/20/23	7/10/23
12/9/22	4/17/23	8/7/23

As Fellowship recipients, Ph.D. 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/>. Information for international students is at: <http://www.finance.umich.edu/finops/payroll/foreign>.

### 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

Enrollment forms for health care coverage are available online. Please see the University of Michigan Benefits Office website to provide/submit the necessary information as soon as possible.

### 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.

## 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 Ph.D. 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 (consistent with Rackham requirements). The student will submit the dissertation committee membership form within three months after advancement to candidacy, **usually by the end of November of the second year.**

For detailed information on eligibility 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/>

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, and whose appointment will satisfy the following requirements.

All Dissertation Committees must consist of at least four (4) members. At least two of the Committee members in addition to the chair must be regular members from the Department of Molecular, Cellular, and Developmental Biology. Overall, each Committee must have

- a chair or two co-chairs;
- an outside member who is a regular member of the Graduate Faculty in a Rackham doctoral program, who is familiar with the standards for doctoral research, and who, preferably, holds an appointment in a collateral or related field; and
- a minimum of three regular members of the Rackham Graduate Faculty.

## 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 Issues

Second-year students are employees of the University and as such, the paydays will fall on the last working day of the month. 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.

## 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.

## 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 Ph.D.

### 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 a 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 through the CONCUR system within 15 days of returning from the meeting. 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.

### Defense of Dissertation

Upon completion of research, students write a dissertation in accordance with the requirements of the Graduate School. Once the dissertation is read and approved by the committee members, the student must present an oral defense of the dissertation. It is a policy of the Graduate School that dissertations be published. The Dissertation Handbook available on the Rackham website provides guidelines for preparing and submitting the dissertation. (<https://rackham.umich.edu/wp-content/uploads/2020/08/dissertation-handbook.pdf>)

### 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.



## Dissertation Preparation

Dissertations will be expected to conform to the Rackham Graduate School guidelines. Rackham offers explicit directions for formatting the dissertation and abstract and other helpful information on the Rackham website (<https://rackham.umich.edu/navigating-your-degree/formatting-guidelines/>.)

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

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.

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

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

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

## Student Employment and Absences Policies

### Student Employment Outside the Program

MCDB faculty believe that Ph.D. 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, Ph.D. 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 Or Leaves

#### 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/>

## 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 Ph.D. 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's Programs



## Master's Programs: Pathways Master's

### Overview

Students begin the program in the summer preceding their first fall term. Students will be matched into research labs while they also participate in the Rackham Summer Institute. 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 complete 24 credits of graduate credits, including a minimum of 12 credits of course work and 8 credits of research.

Students will present their thesis work in an open seminar, followed by a private oral exam by their thesis committee.

Students are required to be Graduate Student Instructors (teaching assistant) for a minimum of two terms during their program.

Students are fully supported for two years.

### Curriculum

Students must complete:

- 24 Rackham credits in MCDB and related areas, including a minimum of 12 credits of course-work and 8 credits of research (MCDB 700). Only graduate-level courses (400 level and above) may count towards the M.S. degree.
- Responsible Conduct of Research Course during their first year in the program.

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

### 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 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 of thesis defense.

### 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.

## Pathways Timeline

### Year 1

#### Summer:

- Rackham Summer Program.
- 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

## Master's Program: Traditional Master's

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. There is an option to pursue research and prepare 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 the 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 the large number of course choices available on the Ann Arbor campus and to choose those that will best prepare you for your future in the biological or medical sciences. Graduate programs are linked at: "Programs of Study" on the Rackham website. From those links you can find eligible courses.

Courses offered by the College of Literature, Sciences, and the Arts (LSA), including MCDB courses, can be found on LSA's online course guide: <http://www.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>

The School of Public Health offers courses in Biostatistics, Environmental Health, Epidemiology, Health Behavior, and Health Education that can fulfill credit requirements. See the School of Public Health 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. This course consists of a weekly research seminar that features visiting biologists discussing a wide range of biological questions.

**Research Responsibility and Ethics:** MCDB 466 or PIBS 503 are 1 credit courses that fulfill this requirement.

### Research and Thesis Option

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

If a student wishes to pursue the thesis option, the 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. See the discussion on page 9.

### 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 Ph.D. 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 this event.

## 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.