Johns Hopkins Biology Master's Program Handbook

The mission of the Master's Program in Molecular and Cellular Biology is to provide Johns Hopkins biology majors with advanced training to expand their preparation for professional school and/or a career in science or medicine. The program enables students to build on their previous academic and research experience to earn a master's degree in one academic year. The program components consist of mentoring from Johns Hopkins faculty, coursework including a specialized seminar, leadership and teaching experience as a laboratory teaching assistant, and an intensive independent research project culminating in a written thesis and oral presentation.

Students admitted to the program will be awarded the Master's degree if they satisfactorily complete the orientation requirements, course requirements, teaching requirements, thesis and oral presentation, and graduation requirements described below. If you have any questions, please contact the Assistant Director.

A. Orientation requirements

All students are required to attend:

1. The Teaching Assistant Training that is given by the University (before Fall classes start)
2. Biosafety and Radiation (before Fall classes start)

If you are unable to attend any of the trainings, you must contact the Assistant Director.

B. Course Requirements

Students in the program must complete all requirements for the B.A. or B.S. degree. To register for courses, students must meet with the Program Advisor each semester (Fall, Intersession and Spring) before registration to have their coursework approved. In addition to the Bachelor's degree requirements, students enrolled in the Master's program must complete the following Master's degree requirements. Letter grades are given for graduate coursework and will be recorded on the permanent transcript.

- **Four advanced courses.** At least two of these courses must be at the 600-level or above. The four additional courses may be taken before the Master's year (while an undergraduate), but upper level elective courses taken to fulfill the B.A. or B.S. degrees will not fulfill the M.S. degree requirement. Courses fulfilling the advanced course requirements for the M.S. program are listed on the Department of Biology website at www.bio.jhu.edu. Any courses that are not listed must be approved by the Program Director in order to count towards the degree.
- **Advanced Seminar in Molecular and Cellular Biology** (020.401 and 020.402; 3 credits each). All M.S. students will participate in this 3-credit weekly seminar during their year in the program. The seminar involves student presentations of research and discussion of topics of current interest in the field. Attendance is required.
- **Mentored Research Program in Molecular and Cellular Biology** (020.551, 020.552 and 020.553). The Mentored Research Program provides M.S. students with intensive research experience for a full academic year (including intersession). Students in the program work under the direction of a research mentor on an original research project approved by the Admissions Committee, produce a written report in the form of a thesis, and make a presentation of the work to the Biology department (see below for more details). Monitoring the progress of the students during the research year is the responsibility of the research mentors. Students register for 020.551 in the fall, 020.552 in the intersession and 020.553 in the spring.

Students receive 9 credit hours per semester for research during the fall and spring semesters of the research year and 3 credit hours for the intersession. This aspect of the program requires a waiver of the usual limit of 6 research credits per year. This assignment of credits is quite conservative for the expected full-time research work. The formula for assigning credits for independent research is 3 hours of work per week per credit hour. According to this formula, 9 credit hours would correspond to 27 hours per week of research.

Students are assigned a letter grade for research each semester based on the mentor's evaluation of research progress. The research summary and grade report (available on the Program website) must be submitted **by the student** to the Program Administrator and Program Advisor by the last day of classes at the end of each semester and Intersession.

Sample Schedule

	Fall	**Intersession**	**Spring**
Research	020.551	020.552	020.553
Seminar	020.401		020.402
Electives	2 Approved Electives		2 Approved Electives

Academic Standing

Students must receive a grade of B or better in all courses during the duration of the program. The M.S. Program will conduct a mid-year review of all current Masters students and a year-end review prior to graduation. Students not making adequate progress in research, coursework or teaching may be required to do extra work or be dismissed from the program.

C. Teaching Requirement

Teaching is an integral component of the Master's degree. The teaching requirement can only be fulfilled as a Teaching Assistant for a biology laboratory and lecture course each semester (fall and spring). For the lecture courses, these duties include participation in exam proctoring and grading of exams and weekly assignments. For the lab courses, these duties include participation in practice labs, teaching one lab section, and grading lab and lecture assignments. The course instructor will evaluate the teaching assistants and unsatisfactory performance will be addressed appropriately.

D. Thesis and Oral Presentation

The mentored research program culminates in the preparation of a written report of the research project in the form of a written thesis at the end of the year and an oral thesis presentation. Preparation of the thesis must be supervised and approved by the research mentor. Guidance and feedback will also be provided in the Advanced Seminar in Molecular and Cellular Biology. Please see important deadlines/ dates regarding the thesis preparation under "Graduation Requirements and Deadlines."

Thesis Requirements

1. A first chapter that provides a thoughtful and substantial review of the general area of your thesis research.
2. At least one research chapter written in the format of a scientific paper containing a brief introduction, detailed methods and results, and a thorough discussion.
3. Sufficient data to document the accomplished research.
4. A complete list of references.
5. At least 25 pages excluding figures and references (double-spaced, 12 pt font).

Thesis Submission

When the thesis is complete, the final thesis and a readers' letter must be submitted to the thesis reader(s). The readers' letter must be written by the student's research mentor on departmental letterhead and must indicate that the mentor is satisfied with the written thesis. A sample readers' letter is available on the Master's Program website.

After final approval from the thesis reader(s), the thesis should be submitted by the deadline. The Graduate Board has strict rules for the format and electronic submission of the thesis. Failure to comply with these rules may result in rejection of your thesis. To learn about the guidelines and submission process, see the MSE Library's website on Electronic Theses and Dissertations.

Oral Presentation

At the end of the research year each M.S. student will present their work in an oral presentation that will be twenty minutes in length followed by ten minutes for questions from the audience. Students will be provided further guidance and practice for their presentations in the Advanced Seminar in Molecular and Cellular Biology.

Evaluation

The thesis readers, the Principle investigator and typically the Program Advisor or the Assistant Program Director, are responsible for approval of the final written thesis. Oral presentations are evaluated by members of the Master's Program Committee in attendance. Passing performance on both the written thesis and oral presentation is required for the M.S. degree. The Program Director will give the final approval for graduation based on successful completion of all components. If any problems arise, the Program Director will discuss any potential problems and solutions with the student.

The evaluation of the final report and presentation is independent of the evaluations made by the research mentor for purposes of assigning credit hours for work during the research year, and the evaluation does not affect the credit hours the student receives for research. A student who does not receive a passing evaluation for the final report and presentation will not be awarded the M.S. degree, but may nevertheless receive a B.A. in Biology or a B.S. in Molecular and Cellular Biology if the requirements for these degrees have been fulfilled.

E. Graduation Requirements

August	Teaching Assistant and Biosafety Trainings
December	Submit Fall Research Summary and Grade Report to Program Administrator
January	Submit Intersession Research Summary and Grade Report to Program Administrator
January	Complete Mid-Year Progress Report Meeting
February	Application for Graduation due to Registrar
April	All materials (reader's letter and thesis) submitted to Thesis Readers Approved thesis must be submitted electronically Confirmation of the submission must be e-mailed to Program Coordinator
May	Final Oral Presentation
May	KSAS Master's Commencement
May	University Commencement

F. Academic Integrity and Student Conduct

Students in the Master's program are governed by the Graduate Board's Policies on Academic Integrity and Student Conduct (reproduced below). Students are honor-bound to report violation of these policies to the appropriate faculty member(s). If the matter cannot be mutually settled by the faculty member (and/or departmental chair) and the student, an ad-hoc ethics board is to be convened by the Dean of the Graduate School. This board will consist of a minimum of three members, (at least two faculty members and at least one graduate student).

Academic Integrity

In all aspects of their work, students assume an obligation to conduct themselves in a manner appropriate to the Johns Hopkins University's mission as an institution of higher education. A student must refrain from acts that he or she knows, or under the circumstances has reason to know, may impair the academic integrity of the University. Violations of academic integrity include, but are not limited to: cheating, plagiarism; submitting as one's own the same or substantially similar work of another; knowingly furnishing false information to any agent of the University for inclusion in the academic records; dishonesty in discharging teaching assistant duties; falsification; forgery.

Student Conduct

The university expects all students to respect the rights of others, and to refrain from behavior that impairs the University's mission of teaching, research/scholarship, and outreach to the local, national, and international community. Violations of appropriate student conduct may include, but are not limited to: harassment behavior (physical or verbal); intimidation or verbal abuse; actions that are a danger to one's own personal safety or that may harm others, and actions that destroy, impair, or wrongfully appropriate property.

Students are expected to know and abide by University policies governing student conduct and academic integrity. Those who impair the University's mission are subject to expulsion. Refer to your divisional academic policies and procedures for specific information**.**

G. Other Requirements

Health Insurance

It is University policy that all full-time students maintain adequate health insurance coverage. As a full-time student, you must either purchase the University plan or sign a waiver indicating you have health insurance coverage comparable to the University plan (International Students are required to purchase the University plan). Details about the student health plan offered by the University are available on the Registrar's website.

Employment

Students may not hold other jobs during the Masters year, including serving as a teaching assistant for an additional course beyond the teaching requirement.

H. Disclaimer

This handbook presents current guidelines and practices for the M.S. Program. The Program Committee and Biology Department Chair reserve the right to create or modify requirements and otherwise alter graduate program practices without advance notice.

I. M.S. Program Committee

The M.S. program is administered by the Department of Biology. Members of the Program Committee make the final decisions regarding admissions, coursework, research programs and mentors for students in the program, and formulate and oversee program policies.

Department Chair

The Chair has the final say in any programmatic changes or decisions.

Program Director

The program director defines the mission of the program, makes final admissions decisions, and reviews thesis work and fulfillment of graduation requirements at the end of the year. The program director handles any problems that arise with students and/or mentors.

Assistant Program Director

The Assistant Program Director will assist the Program Director with all responsibilities and facilitate coordination among the members of the program. The Assistant Director will lead the M.S. Program Information Session and the Orientation Session and serve as the thesis reader.

Program Advisor
The student advisor will be responsible for ensuring the student in the M.S. program has fulfilled their academic requirements, approve course registrations.

Teaching Assistant Advisors
The Teaching Assistant advisors will oversee the teaching component of the program.

Thesis Reader(s)
The thesis readers will ensure that the document is clearly written, scientifically sound, and fulfills graduation requirements. The Program Advisor and The Assistant Program Director may serve as a thesis reader.

Admissions Committee
The admissions committee reviews applications and makes recommendations as to the suitability of the applicant for the program. The Admissions Committee consists of the Program Director, Assistant Director, Program Advisor, Teaching Assistant Advisor, and two additional faculty members.

Program Administrator
The program administrator will serve as the administrative liaison between the Program Committee and students. The program administrator will assure the terms of the financial awards are appropriate once a student is offered admission. The program administrator will ensure that the students are properly enrolled, financial assistance is awarded, and the degree and course requirements are met.

Program Coordinator
The program coordinator assists the program administrator with all administrative responsibilities. The program coordinator assists with applications and enrollment. The program coordinator organizes orientation, training, final presentations and composes the final academic calendar. The program coordinator will ensure that the students are aware of deadlines and benchmarks for the program.

MS Program Directory

Name	Position	Location	Email
Vincent Hilser	Department Chair	Mudd 122	hilser@jhu.edu
Haiqing Zhao	Director	Mudd 224A	hzhao@jhu.edu
Anna Coppola	Assistant Director	Macaulay 207	anna.coppola@jhu.edu
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Rebecca Pearlman	TA Advisor	UTL 281	pearlman@jhu.edu
Trina Schroer	Admissions Committee	Mudd 220	schroer@jhu.edu
Alecia Flynn	Administrator	Mudd 144	aflynn12@jhu.edu
Katherine Mincey	Coordinator	Mudd 144	kmincey1@jhu.edu