



MARQUETTE
UNIVERSITY

Department of
Biological Sciences
Graduate Handbook
2023/2024

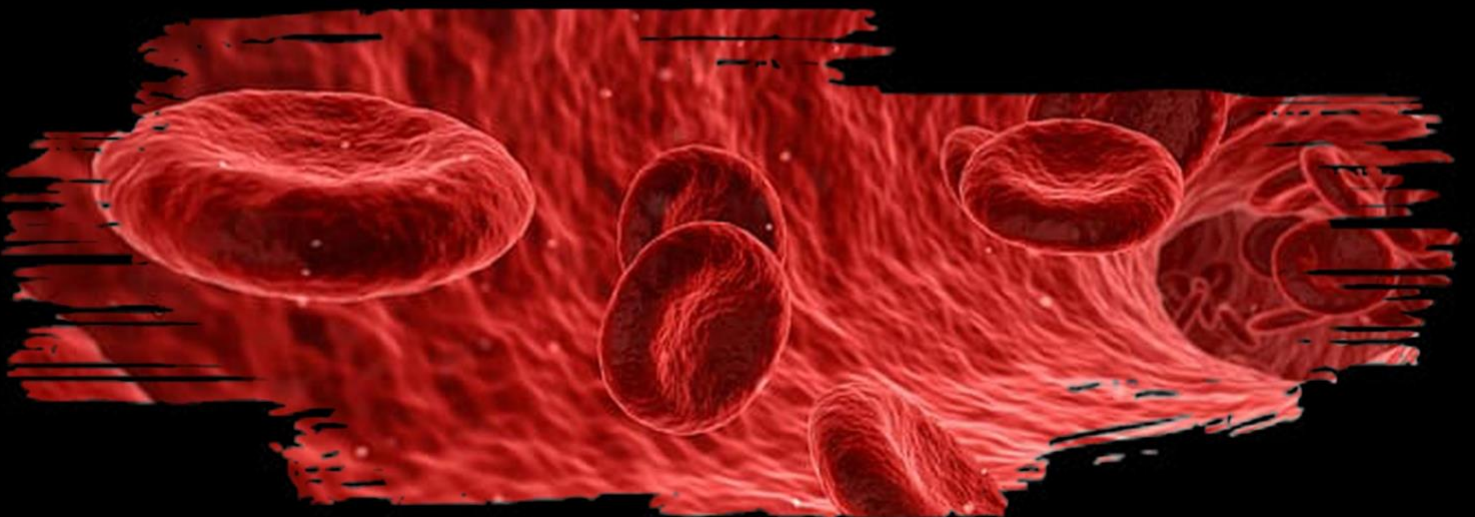
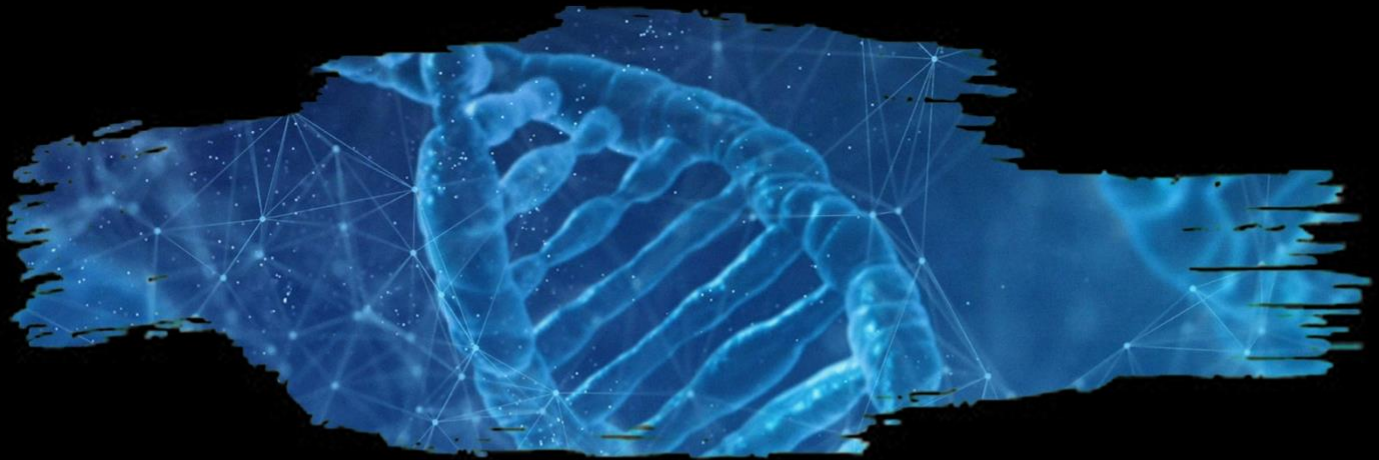


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Dear Biological Sciences Graduate Student,

On the behalf of the Department of Biological Sciences at Marquette University, welcome! We extend our heartfelt wishes for you to achieve great success and fulfill your goals during your studies at Marquette University. Your time here at Marquette will be filled with intellectual growth as you gain skills and proficiencies towards being an independent scientist.

The purpose of this Biological Sciences Graduate Handbook is to assist you through your graduate studies. All students are expected to read and be familiar with the contents of this handbook. Additional resources about academic services, diversity and inclusion, dissertation preparation, etc. can be found on the [graduate school website](#).

We recognize that graduate training is not straightforward and simple. There will be times of frustration and failure. However, we strive to achieve a culture of support and belonging to help students achieve their goals.

Best wishes,

Anita L. Manogaran, Ph.D.
Associate Professor of Biological Sciences
Director of Graduate Studies

Michelle Mynlieff, Ph.D.
Professor
Chair of Biological Sciences

SECTION I. NEW STUDENTS TO THE GRADUATE PROGRAM IN BIOLOGICAL SCIENCES.

This section is designed for new graduate students in the graduate program in Biological Sciences at Marquette University. Here, you will find basic information regarding registration, orientation, and training. However, it is important that all students read all emails sent by the Graduate School and the Department regarding detailed instructions for first-year student activities. Email will be used throughout your graduate career to communicate important deadlines and action items.

First year Graduate Student Checklist

- Attend all departmental orientation activities (usually during the week prior to the start of academic classes).
- Attend all graduate school mandated orientation activities (usually during the week prior to the start of academic classes).
- Meet with graduate advisor to discuss coursework (usually during the summer before classes start).
- Attend department safety and hazardous disposal training activities (usually during the week prior to the start of academic classes).
- Obtain Marquette ID (MUID; usually during the week prior to the start of academic classes).
- Submit employee paperwork for stipends (usually during the week prior to the start of academic classes).

Department orientation

The entire week prior to the first day of classes is reserved for first year graduate student orientation. Departmental orientation has sessions focused on the overview of the program, student success and acclimation to graduate school, research rotations, teaching assistant training, and safety/hazardous waste training. In addition, students will hear short research talks from faculty throughout the week. The graduate school also holds several orientation sessions focused on student success, student resources, and teaching assistant training. International students are required to attend several mandatory sessions held by the Center for International Education.

Department picnic and Kick-off

During orientation week, we usually hold an informal gathering where all faculty, staff and graduate students can mingle and enjoy getting to know each other. This event has traditionally been held at a Milwaukee County Park. We hope you and loved ones will attend this event with us.

SECTION II: DOCTORAL DEGREE REQUIREMENTS

The Department of Biological Sciences offers a rigorous and intellectually driven PhD program that aspires to train scientists suited for careers in research and teaching. Students are trained to achieve academic excellence by sparking their innate curiosity and by gaining an appreciation for the rigor of the scientific method. The program offers a diverse range of research emphasis groups. In some cases, students select research projects that include more than one field of study. These studies are listed through the graduate school website: <https://www.marquette.edu/biology/graduate-studies.php>

The following are the programmatic learning outcomes of the Ph.D. program in Biological Sciences.

1. Demonstrate the ability to acquire information and communicate specialized knowledge in a subfield of biology.
2. Synthesize knowledge from a specific subfield into broader biological concepts and theories.
3. Recognize and address critical gaps in knowledge within a specific field of study.
4. Critically evaluate and challenge existing field-specific theories.
5. Independently formulate and test hypotheses through the design and execution of novel research
6. Analyze and interpret data to reach conclusions that advance knowledge in the relevant scientific field.
7. Communicate general scientific understanding and independent research findings to scientific audiences in a clear, logical, and compelling manner.

The steps to lead you through the program are found below.

A. Lab Rotations.

Laboratory rotations are designed to give entering students experience in different research topics, techniques and mentoring styles. All students are required to participate in a minimum of three lab rotations, enrolling in BIOL6096 course. The academic advisor will provide direction in how to enroll in these courses during the first year. During orientation week, faculty will present their work in short research presentations, and students should meet with individual faculty to discuss the potential to participate in a rotation.

Academic advisor for first semester vs. dissertation advisor

Upon entering the program, the Director of Graduate Studies or their designee will be assigned as an academic advisor. This academic advisor will discuss appropriate coursework prior to the first day of classes as well as discuss rotation interests. After all rotations are completed, academic and dissertation advising will be transferred to the faculty member who lab the student has been matched.

Selection of rotation mentors

Students will be asked to formally rank labs in which they are interested in rotating. The director of graduate studies will assign students to their rotation labs based on student interest and availability of the lab.

Rotations, expectations, and evaluation

Rotations will range from 5-6 weeks. The three rotations are designed to be completed before the start of second semester. Students will meet with the research mentor to discuss expectations, time management, reading materials, and to discuss the research project. It is expected that students will commit a significant amount of time towards work in the rotation lab. Rotation performances are graded on a satisfactory "S" or unsatisfactory "U" basis. Receiving a "U" rotation grade may be grounds for placement on probation and any additional "U" rotation grade may be grounds for dismissal from the program. Faculty choosing to give a "U" grade to a student for their rotation performance should directly communicate this to the student at the end of the rotation period and explain why they considered the student's performance not to be at the expected level. Faculty assigning a student a "U" grade for a

rotation or terminating a rotation should also directly inform the Director of Graduate Studies. Prior to completion of the second semester, Ph.D. students must match with a major professor.

Lab matches

Near the end of the third rotation, the Director of Graduate Studies (DGS) will solicit a count of how many new graduate students each faculty that hosted rotation students could potentially accept into their lab. The DGS will inform all first-year students of the counts provided by the faculty. Students will submit a prioritized list of faculty to the Graduate Affairs Committee indicating the faculty with whom they rotated into "acceptable" and "unacceptable" and then rank order the acceptable faculty. Faculty will submit a similar list of students to the committee, with rank and acceptability. An Assignment Committee who do not have a conflict of interest (i.e. had students participating in rotations) will be assembled to perform the lab matches. The overriding factor for the Assignment Committee will be to place students in labs for which both mentor and student have deemed the match acceptable. Wherever possible, higher priority will be given to the preference of the students. All information received by the Assignment Committee will remain strictly confidential.

It is important to note that there are two policies that constrain the number of graduate students per lab, whose stipends are not fully supported by individual faculty funds. First, no faculty member will accept more than two first-year students into their lab in any given year. Second, no faculty member will have more than three first- and second-year students in their lab at any one time. It is important that students are aware of these policies prior to ranking labs.

After formal matches, a signed agreement form must be submitted to the department indicating the agreement of the match. It should be noted that a student is not obliged to enter any of the labs sampled, nor does accepting a student for a laboratory rotation oblige a faculty member to become a student's major professor.

In the unlikely event that an assignment into a laboratory of interest cannot be secured for the student after completing the 3 rotations and matching process, an option of completing a fourth rotation will be provided. Note, if a student cannot secure a match after four rotation periods, this may be grounds for dismissal from the program.

B. Dissertation advisor and dissertation advisory committee

After the third rotation (usually completed in by the first day of classes in spring semester), students will be matched to a lab. The faculty member will become the student's dissertation advisor. Before matching, the Director of Graduate Studies of their designee will be responsible for advising and approving all course selections for graduate students until dissertation advisor is assigned.

A permanent thesis/dissertation advisory committee should be chosen **no later than the last day of the student's second semester**. The committee will consist of no fewer than four members for Ph.D. students. Three members must be faculty from the Department of Biological Sciences. Any members from outside the University must provide a C.V (which will be submitted to the department and the graduate school for approval). The committee is appointed by the Department Chair upon recommendation of the student's major professor, following consultation with the student.

The Advisory Committee shall meet with the student annually to evaluate student progress and consult on the dissertation project. It is strongly recommended that the annual committee meeting be held within one week of the presentation of the student's graduate student seminar.

C. Program planning

A student's program of study and research will be decided by the student and their thesis/dissertation advisory committee. The **advisory committee will meet before the last day of second semester** to review the student's background and decide upon a program of coursework. For this meeting, the student should prepare a list of undergraduate and graduate courses already taken that are relevant to the field of study, the grades obtained in these courses, and where the courses were taken. In addition, the student, in consultation with the major professor, should prepare a written plan of coursework for consideration by the committee at this meeting. A formal Doctoral Planning Form (obtainable from the Graduate School

web site) must be submitted by the student and their advisory committee to the assistant of the Graduate Affairs Committee to be forwarded to the Graduate School Office **no later than the end of the student's second semester**. For students who have switch from the Master's program to the Ph.D. program will have the deadline extended to the end of the 5th semester.

D. Coursework and requirements

The program of course work and research for the doctoral degree is determined in consultation with the student's advisory committee. Each student is advised to take such courses as are properly related to academic background and research interests. All doctoral students are required to gain the equivalent of one year of teaching experience during the program. Please consult the updated doctoral requirements and bulletin on the graduate school website.

A typical doctoral student completes a minimum required 24 credit hours of course work and 12 credit hours of dissertation work. Course work should include:

- BIOL8004 Advanced Experimental Design (2 credits)
- BIOL8005 Scientific Writing (2 credits)
- Five 2-3 credit graduate lecture courses
- Five 1-credit seminar courses
- Two BIOL6097 research credits
- Three BIOL 6096 rotation credits
- Registration for BIOL6952 Department Colloquium during each term of residence.
- Twelve credits of BIOL8999 Dissertation Credits

Every graduate student must enroll in either: adviser-approved course work; thesis or dissertation credits; a continuation course; or a combination thereof every fall and spring semester until graduation to maintain their graduate student status. Any student failing to enroll for one or more academic year semesters must petition for readmission upon return. Reinstatement is possible if departmental endorsement is given, and the student has no outstanding balance owed to the university. The Dean of the Graduate School and the major department jointly decide if a student will be readmitted.

More detailed information is available in the Graduate School Bulletin.

An example of a typical Ph.D. Track

Semester 1 (Fall 1st year)

BIOL8004 Advanced Experimental Design (2 credits)
Elective Course (2 credits)
BIOL6096 Rotation credits (2 credits)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 6-7 credits

Semester 3 (Fall 2nd year)

BIOL8005 Scientific Writing (2 credits)
Elective Course (2 credits)
BIOL 6097 Research credits (2 credits)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 6-7 credits

Semester 5 (Fall 3rd year)

Dissertation credits (6 credits)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 6-7 credits

Semester 2 (Spring 1st year)

Elective Course (2 credits)
Elective Course (2 credits)
BIOL6096 Rotation credits (1 credits)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 5-6 credits

Semester 4 (Spring 2nd year)

Elective Course (2 credits)
-
BIOL 6097 Research credits (3 credits)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 5-6 credits

Semester 6 (Spring 3rd year)

Dissertation credits (6 cr.)
BIOL6952 Departmental Colloquium
0-1 seminar course (0-1 credits)
= 6-7 credits

Semesters 7-10 (and beyond)

Each semester, students must be enrolled in BIOL6952 Departmental Colloquium and fulltime continuous enrollment (department will provide paperwork).

Each year, students will enroll in one seminar course up till then end of their 10th semester. It is important to note that students are welcome to take seminar courses beyond the five annual seminar courses.

a. Continuation courses (full-time continuous enrollment).

In order to maintain full-time status, students who are not enrolled for at least seven credits in a semester must be enrolled in a continuation course. The deadline for continuation course registration is the first day of the semester. The director of graduate studies will ask students to submit an advising form. Students enrolled in less than seven credits must check the continuous enrollment box. This information is forwarded to the graduate school by the department. This course is graded "S/U", and there is a \$100 fee charged, which will usually be paid teaching assistantship tuition scholarship, or by grant supported Research assistantships. Please consult with your major advisor if this fee is not covered by extramural fellowships or faculty grants.

b. Transfer of courses

When a doctoral student enters the program with a master's degree from another institution in the same or a closely related field, the student may request the department and the Graduate School to allow the master's degree to satisfy up to 25% of the 24 required course credits. This request is made via the Doctoral Program Planning form. In all cases, a minimum of 18 credits of coursework exclusive of the dissertation credits must be taken at Marquette while in the doctoral program.

c. Undergraduate courses

Graduate students may be permitted to apply upper division undergraduate credits towards their graduate program. Such courses require department approval (either the student's major professor or adviser, Graduate Affairs Committee or Department Chair). Only those courses which are designated as being available for graduate credit (5000 level courses) can be so used. Under some circumstances the student may be advised by their committee to make up deficiencies in their previous undergraduate

training by taking undergraduate courses which are not available for graduate credit. Such courses do not count towards the credits required for a graduate degree.

d. Audited courses

Graduate students who audit courses are charged the full graduate fee per credit plus all laboratory fees where applicable (undergraduate or graduate). Such audited courses are not credited towards the graduate degree. If student tuition is covered under a TA-ship or RA-ship, please refer to the offer letter to know the number of credits that will be covered. Audited courses will be included in the total credit amount.

e. Student Course Load

As stated in the [Graduate School Bulletin](#), a student may take a maximum of 14 credit hours during any one semester (however, it is important to be aware that most scholarships will only cover 7-9 credits. Please see offer letters for details). During a summer session, a maximum of seven credit hours may be taken. Full-time status normally requires seven credit hours per semester, or registration in a continuation course. A course load greater than 10 hours requires the approval of the student's mentor, Department Chair, and the Graduate School on the [Credit Overload Request form](#), available on the Marquette Central academic forms website.

f. Withdrawing from (dropping) a course

A student who wishes to drop a course and/or change to audit must obtain, in writing, the permission of both their research/academic advisor and the Director of Graduate Studies. Students granted permission to withdraw from a course must notify the Graduate School office by completing a [Request to Drop a Course](#) form. See the [Graduate School Bulletin](#) for further information.

g. Enrollment for students graduating in summer

Graduate students who intend to graduate in August must be enrolled in a continuation course during the summer term prior to their graduation. Registration in the summer is only required if the student intends to graduate in August.

h. An important note about tuition waivers

Most Teaching Assistantships through Marquette University and Research Assistantships from faculty grants include a tuition waiver that covers usually seven graduate credits. It is important to note that university and external fellowships do not have tuition waivers. Please refer to the offer letters either from the graduate school or the department to find the appropriate information. Students will be responsible for tuition beyond what is covered in their offer letter.

E. Teaching Experience

All graduate students in Biological Sciences are required to have two semesters of teaching experience in partial fulfillment of the requirements for the Ph.D. or master's degree. Teaching experience, if properly documented, may be accepted from another institution.

F. Doctoral Qualifying Exam.

All students in the doctoral program must complete a doctoral qualifying exam by the end of their second year. Requirements, timelines, and evaluation criteria are provided in section 4.

G. Doctoral candidacy.

A student who has passed both the written and oral portions of the qualifying exam are eligible for "Advancement to Doctoral Candidacy." The advancement is not official unless submitted to the graduate school. These DocuSign forms can be accessed directly through the [graduate school website](#), under forms. All forms must be initiated by the doctoral student.

H. Doctoral Outline/Proposal.

All students who have passed their doctoral qualifying exam must submit a doctoral outline/proposal to their dissertation committee for approval. These DocuSign forms can be accessed directly through the

[graduate school website](#), under forms. All forms must be initiated by the doctoral student. Requirements, timelines, and evaluation criteria are provided in section 4.

I. Academic Dishonesty

Academic dishonesty includes, but is not limited to, such practices as dishonesty in the completion of class assignments and examinations, the presentation of research done by another as one's own research, or the presentation of any written material done by others as one's own writing. All graduate students must complete the Graduate Academic Integrity Tutorial that can be accessed on the D2L homepage (click on Academic Integrity in the upper right corner) by October 1 of their first year (March 1 for students beginning in January). In addition, graduate students are encouraged to review the undergraduate tutorial as well if they are teaching assistants or they need further clarification on plagiarism. Any student who is found to have engaged in academic dishonesty will be reported to the Academic Integrity Director. Procedures for handling accusations of academic dishonesty may be found in the Marquette University [Graduate School Bulletin](#). Further information can be found on the [Academic Integrity website](#). Appeals of academic integrity decisions must be submitted to the Academic Integrity Director except for cases resulting in university-wide sanctions such as suspension or expulsion, which must be submitted to the Office of the Provost.

J. Language Requirements.

Normally no reading knowledge of a foreign language is required for the graduate program in Biological Sciences. However, at the discretion of the student's advisory committee, proficiency in a foreign language may be required if it is necessary in the student's research. All new international teaching assistants must have their English skills evaluated by the Office of International Education during the mandatory International Teaching Assistant Program run by that department. Based on the evaluation, it may be required that the student register for ESLP 6021 (American Language and Communication for Teaching Assistants). The course is for two credits, a letter grade is assigned for this course, and the student's tuition scholarship may be used to pay for the course.

K. Residency Requirements

Doctoral students must be enrolled with full-time status for at least two consecutive academic years while working under the direction of their advisory committee chair and advisory committee. The intent of this requirement is to ensure that such students experience the full meaning of being part of a community of scholars. The period of residency provides the opportunity to achieve this experience by insisting on the near-total immersion of the doctoral student in academic intellectual endeavors. Any residency option **must be approved by the Graduate School prior to its completion via the [Doctoral Program Planning Form](#)**. Note that students who are supported on university teaching assistantships or university/grant funded research assistantships require that students are enrolled with full-time status. These assistantship requirements are independent of the residency requirements.

L. Time limitations

Students are expected to complete all requirements for their degrees in the time allowed as stated in the [Graduate School Bulletin](#), with a maximum of eight years for doctoral degrees. The time period begins with the date of admission to degree status and the start of the time period is not affected by transfer credit taken prior to admission to Marquette. Students who are unable to complete their degrees within the allowable time may petition the Graduate School for an extension. See the Graduate School Bulletin for more information.

M. Extramural Ph.D.

In general, graduate students are expected to choose a major professor from either the regular or adjunct faculty of the department. Under exceptional circumstances, a student may request permission from the Department Chair to work in a laboratory outside these sites. However, a thesis/dissertation advisor must also be chosen from the department faculty who then will monitor and be responsible for the student's training. Publications resulting from this arrangement will acknowledge the Department of Biological Sciences as the primary address of the student author.

N. Other activities of the doctoral program.

Doctoral students are required to participate in several activities that will increase their scientific communication skills, ability to critique the scientific literature, and contribute to a scientific culture of collaboration, collegiality, and support.

a. BIOL6952 Department Colloquium

i. Graduate seminars

To gain experience in oral presentation of their research, each graduate student will deliver an annual seminar. The first of these will occur in the fall semester of the second year of graduate study and normally every year thereafter. (Ph.D. students who have formally announced their dissertation defense date will be excused). The major responsibility of this presentation is to communicate the rationale for, and goals of, the student's research activity. Following a brief introduction, concise methodology and current data are then given. Students in their 3-6th semester will be allowed a 15-minute presentation followed by a 5-minute question period. Students beyond their 6th semester will be allowed a 20-minute presentation followed by a 5-minute question period (similar to conference proceedings).

Graduate student seminars are scheduled on Thursdays 12:00-12:50. Two graduate students will usually speak per session. In general, students in their 3rd-6th semester will present in the fall, and students beyond their 6th semester will present in spring. The order will be determined by the director of graduate affairs and the availability of committee members to attend. Current [schedules](#) are posted on the department's website. Audience members are allowed to provide critiques on paper or online for student speakers. **Attendance at these seminars is mandatory for all graduate students.**

An abstract (no more than one page) and title should be submitted to the assistant to the Graduate Affairs Committee for distribution to faculty and graduate students usually two days prior to the seminar. This abstract should be understandable to most of the department and, thus, may contain more information than a typical meeting or manuscript abstract.

ii. Journal club

All students are required to participate in a departmental journal club each semester unless prevented from doing so by a course teaching conflict, enrollment in a conflicting course, or field research. These journal clubs are organized by M.U. fellows and overseen by a faculty member of the Graduate Affairs Committee and give students an opportunity to critically read and present papers from the current literature. Journal clubs will meet approximately weekly during the semester. In addition to attending the journal clubs, each student is expected to present a paper in a journal club at least once per year.

iii. Graduate student invited speaker

Biological sciences graduate students are invited to select and host a speaker for the Department Seminar Program annually. In the spring semester, the Graduate Student Representative(s) will contact third-year students to arrange a meeting to discuss and nominate a potential speaker for the following academic year. This meeting must be conducted by spring break. Students interested in inviting a potential speaker must define, in writing for the graduate students, the speaker's achievements and the rationales of the invitation. Following the meeting, all third-year students vote anonymously to select one candidate in a survey created by the Graduate Student Representative(s). The speaker will be invited in coordination with the departmental administrative assistant. All third-year students are expected to help arrange and participate in the hosting duties when the student-invited speaker visits the following academic year.

iv. Department Colloquium

The department hosts weekly invited speakers to interact with both faculty and graduate students. These opportunities expose all students to a diverse array of fields while providing students one-on-one access to top scientists in the field. The talks also provide graduate students with greater detail than is normally presented in regular courses. **Attendance to the department colloquium is mandatory for all graduate students.** The seminars are usually held on Friday afternoons at 3:00 p.m. during the academic year. Information on dates, times and topics will be distributed to all graduate students each semester. Failure to attend on a regular basis will result in a grade of "U".

b. Contributions to the Department

To build community and interaction within the department and the scientific community, students are often asked to contribute to selective activities. While these selective activities may seem of minor consequence in the short-term but may provide experiences and exposure for future opportunities in the future. These activities include meeting with invited speakers, assist with graduate student recruitment

activities (including meeting with invited students, and participating in poster sessions), proctor BIOL1001/1002 exams, and assist with events (such as departmental parties/picnics, etc).

c. *Graduate student representative*

A graduate student representative that serves as a student liaison to the Graduate Affairs Committee is elected annually by the graduate students to serve a one-year term. The term begins July 1 and is renewable. The election process (organized by the previous year's representatives) should take place in April. In the first week, self-nominations should be solicited, and the nominees should submit a one paragraph written statement describing why they would like to serve as representative, and the goals they hope to accomplish during their term. Nominee statements are distributed to all graduate students. By the end of April, students vote anonymously for the representative (online voting is suggested).

SECTION 3: THE DOCTORAL DEGREE QUALIFYING EXAM

A. OVERVIEW

By the end of the second year of the program, PhD candidates are expected to demonstrate proficiency (defined as a high degree of confidence and skill) in the following competencies:

1. Demonstrate the ability to acquire information and communicate specialized knowledge in a subfield of biology.
2. Synthesize knowledge from a specific subfield into broader biological concepts and theories.
3. Recognize and address critical gaps in knowledge within a specific field of study.
4. Critically evaluate and challenge existing field-specific theories.
5. Independently test hypotheses through the design of novel research
6. Communicate scientific understanding and ideas to scientific audiences in a clear, logical, and compelling manner

These competencies (or outcomes) are core elements of the doctoral program outcomes and proficiency in these areas is critical for success in the doctoral program. Consequently, the qualifying exam is designed to assess students on each of these competencies, both in written and oral formats.

Students must pass both the written and the oral components of the qualifying exam:

The **written component** will consist of a Synthesis Paper that contributes to an integrated understanding of a topic within the student's direct area of research and that presents a new conceptual framework on that topic. Competencies 1, 2, 3, 4 and 6 (see above) are assessed in the Synthesis Paper.

The **oral component** will assess the depth and breadth of the concepts and ideas presented in the Synthesis Paper and will include a broader assessment of the student's field-specific knowledge. The oral exam will also assess the student's ability to present, justify, and defend a research question, hypothesis, and predictions that address one key gap-in-knowledge identified in their Synthesis Paper. Competencies 1 – 6 are assessed in the oral exam.

Please see the Graduate School website for relevant forms for the Qualifying Exam (<https://www.marquette.edu/grad/forms.php>).

B. GENERAL TIMELINE OF QUALIFYING EXAM

1. By the end of the first academic year, students should begin discussing topics and drafting outlines for their Synthesis Paper. The input and assistance of their dissertation advisor is recommended to help guide the student toward relevant literature and key dogmas and gaps in knowledge in their field.
2. At the beginning of the third academic semester, the student will form the qualifying exam committee and the committee chair will be selected. See below for committee composition information.
3. At the annual advisory committee meeting following the second-year seminar presentation, the student is strongly encouraged to discuss the qualifying exam plan and timeline with the committee.
4. Students will compose their Synthesis Paper through the third and/or fourth semester. Students are encouraged to seek the guidance of their advisor and to consult with their examination committee but are expected to read and synthesize literature and write the Synthesis Paper on their own.
5. The student will submit the Synthesis Paper by the date agreed upon with the examination committee. By approximately 5 business days after submission, all voting members of the QE committee will provide written feedback to the chair. By approximately 10 business days after submission, the committee chair will inform the student of whether they have passed or failed the written component of the exam. At this time, the student will receive written feedback, assembled by the committee chair, indicating areas of strength and weakness in the Synthesis Paper. The exact timeline is at the discretion of the QE committee, and this will be clearly communicated to

- the student in writing.
6. By approximately 15 business days after submission, the committee will meet with the student and the dissertation advisor:
 - o If the student has failed the written component, this meeting will focus on discussing the shortcomings of the Synthesis Paper, will provide detailed feedback on how the document can be improved, and will set a date for resubmission. The exact resubmission timeline is at the discretion of the committee, but a resubmission within 4 weeks is strongly encouraged.
 - o If the student has passed the written component, this meeting will consist of the two hour oral QE component of the exam.
 7. Students are advised to begin the QE process early enough that they have time to submit the QE Synthesis document and orally defend the document successfully before the end of the 4th semester. ***See outcomes below for contingency if student fails the written and/or oral exam.**

Summary Timeline of Events

Semester 2	- Discuss topics of project and Synthesis paper with Dissertation advisor.
Semester 3	- Discuss topics of project and Synthesis paper with Dissertation advisor. - Form QE committee - Discuss QE plan with dissertation committee during the committee meeting after the first graduate seminar - Develop synthesis paper
Semester 4	- Continue to develop Synthesis paper - Submit Synthesis Paper approximately beginning to mid-4 th semester <ul style="list-style-type: none"> - ~ day 5 – Committee provides written feedback to the Chair - ~ day 10 – The student is notified of pass or fail - ~ day 15 – Either oral exam meeting or discussion of revision

C. FORMATION OF THE QUALIFYING EXAM COMMITTEE

The qualifying exam committee will be formed early in the student's third semester. The qualifying exam committee will be made up of at least three tenure track Marquette faculty members, one of which must be tenured and not including the dissertation advisor. The qualifying exam committee members may or may not be members of the thesis committee. All members will need to be able to participate in both the written and oral evaluations, either in person or remotely. The chair of the committee must be a tenured faculty member in the Department of Biological Sciences and may not be the student's dissertation advisor.

D. ROLE OF THE DISSERTATION ADVISOR

The dissertation advisor is not a voting member of the qualifying exam committee but plays an important role in guiding the student's development of the Synthesis Paper. The dissertation advisor is encouraged to have regular discussions with the student as they conceptualize, draft and write the Synthesis Paper. However, **the dissertation advisor is not permitted to give feedback on the written Synthesis Paper at any time** (i.e., the advisor is not permitted to offer any direct edits or comments on any area of the Synthesis Paper). For example, the advisor is encouraged to offer regular guidance about the implementation of models and concepts, provide directions on finding relevant literature, discuss central dogmas in the subfield, and collaborate in developing the focus of the Synthesis Paper. The advisor is encouraged to discuss and refine the topic for the Synthesis Paper with the student, to steer the student in the best direction. However, to ensure that the Synthesis Paper is written in the student's voice, **the advisor is not permitted to give feedback on the written Synthesis Paper at any time**. In particular, the advisor is not permitted to read and revise the student's Synthesis Paper any time prior to submission. This rule extends to any individual holding a PhD (i.e. post-doctoral fellows, students in the lab who have an approved dissertation by the graduate school, committee members, etc). This rule does not apply to fellow students. Students are strongly encouraged to seek feedback on their written document from their peers and/or from professionals in the writing center.

The dissertation advisor also plays an important role in providing the qualifying exam committee with valuable feedback on the Synthesis Paper. The advisor is expected to read the submitted Synthesis paper and provide a written evaluation of the Synthesis Paper to the QE committee. The advisor's evaluation of the Synthesis Paper will be considered by the qualifying exam committee as part of their assessment.

The dissertation advisor is also expected to attend the oral component of the QE. The dissertation advisor will enter the oral exam with the student and will not take part in any decisions about whether the student has passed or failed the oral components of the qualifier exam. During the oral component of the exam, the advisor may ask questions of the student. After the student leaves the room, the advisor may remain to offer the committee feedback on the depth and breadth of the student's responses. However, the dissertation advisor may not be present when the qualifying exam committee meets to make a decision about the pass/fail of either the written or oral components.

E. WRITTEN COMPONENT

1. Guidelines for Constructing the Synthesis Paper

This Synthesis Paper is a review of the current state of the field that proposes new ideas or original frameworks. In addition to summarizing the current state of the field, the paper should propose new directions, provide critical evaluation, offer original perspectives, and attempt to resolve long-standing questions. Rather than being a complete historical summary of the field, the paper should be forward-looking, focusing on novel principles that have emerged over the past several years. The paper should conceptually advance the student's subfield of biology.

Good examples of this style of paper (often called "Perspectives" in major journals) can be found at [Nature Perspectives](#), [Cell Perspectives](#) and [Ecology Letters Perspective, Synthesis and Method](#).

Synthesis Paper format

- The paper should not exceed 3,000 words (~15 pages double-spaced, including figures) *
- A title on the top of the first page
- Double-spaced
- 0.5-1.0 inch margins
- 11 pt Times New Roman or Arial font
- Up to five embedded figures and tables (the use of figures and tables is strongly recommended)
- Page numbers at the bottom of the page
- Consistently formatted citations and bibliography

* The word limit does not apply to references.

At the end of the Synthesis Paper, the student should include approximately 3 sentences (under the header: **chalk talk topic**) indicating to the QE committee which key gap-in-knowledge that was identified in the Synthesis Paper that they plan to present on in their "chalk talk" during the oral component of the qualifying exam. This will not be part of the evaluation of the written component of the QE but is meant to indicate ahead of time to the QE committee the topic of the student's chalk talk during the oral QE. If the student would like to change the topic of their chalk talk between submitting the synthesis paper and the oral examination, they should petition the QE committee at least 24 hours prior to the oral examination (approval will be at the discretion of the QE committee).

2. Assessment of the Written Component

The Synthesis Paper will be evaluated by all members of the committee. The dissertation advisor will also evaluate the written document to help inform the committee's decision. The synthesis paper will be evaluated on the following program outcomes (1-4, 6):

1. Demonstrate the ability to acquire information and communicate specialized knowledge in a subfield of biology.
 - Does the document fully and accurately convey the current state of the subfield?

- If there are significant deficiencies in breadth or accuracy, what are those deficiencies?
- 2. Synthesize knowledge from a specific subfield into broader biological concepts and theories.
 - How does the paper connect the subfield-specific questions to their broader significance within larger biological concepts and theories?
- 3. Recognize and address critical gaps in knowledge within a specific field of study.
 - What important gap(s) in the field does the paper describe?
 - How does the paper justify the importance of filling the gap(s) in the subfield?
- 4. Critically evaluate and challenge existing field-specific theories.
 - What new ideas/connections does this paper propose?
 - How do the ideas in this paper challenge or modify existing hypotheses, concepts, mechanisms or prevailing ideas in the field?
- 6. Communicate scientific understanding and ideas to scientific audiences in a clear, logical, and compelling manner
 - Does the paper effectively communicate the ideas to a specialist audience in a manner that is clear, logical, and compelling?

To pass the written component, at least two of the three voting committee members must have rated the student's performance as acceptable. While the dissertation advisor does not have a vote, the dissertation advisor can respond to questions from the committee. All voting committee members will evaluate the Synthesis Paper on the criteria outlined above and will submit their written assessment to the committee chair. Each committee member's assessment will include a statement of whether the student has passed or failed the written component and will describe the strengths and weaknesses of the document. Committee members must provide written feedback to the chair, regardless of whether the student has passed or failed the written component. The committee chair can call a committee meeting if further discussion is needed. Neither the advisor nor the student will be present at the committee meeting where a pass/fail decision is made.

All students, whether they have passed or failed the written component, will receive a summary of the written feedback from the committee chair, indicating areas of strength and weakness in the Synthesis Paper. Note that these strengths and weaknesses are not meant to be comprehensive; they are intended to serve as guidance to help prepare students for the next stage of the exam.

A meeting will be scheduled to take place approximately 14 business days after submission of the Synthesis Paper (at the discretion of the QE committee). If the student has passed the written component, this meeting will serve as the ~2 hour oral component of the exam. If the student has failed the written component, this meeting will serve to provide the student with detailed feedback and to set a date for resubmission after the first failed attempt. The exact resubmission timeline is at the discretion of the committee, but a resubmission within 4 weeks is strongly encouraged.

F. ORAL COMPONENT

The Oral Exam will have two parts. In the first part of the exam (~45 minutes in length), the student will be assessed on their defense of the Synthesis Paper. After a short break, the second part of the exam (~1 hour in length) will assess the student's ability to present, justify, and defend a research question, hypothesis, and predictions that address one key gap-in-knowledge identified in their Synthesis Paper.

Part 1: Defense of Synthesis Paper

Discussion will focus on expanding and clarifying gaps and details that were raised in response to the Synthesis Paper. Students will be asked to defend the ideas and information presented in the Synthesis Paper through questions and discussion focused on the following competencies:

- Students will be asked questions that assess their breadth and depth of knowledge in their subfield (outcome 1).
- Students will be asked to explain the significance and relevance of this topic by connecting it to broader biological concepts and theories (outcome 2).
- Students will be asked to describe the critical gaps in knowledge and explain how these gaps

contribute to new directions in the field (outcome 3).

- Students will be asked to evaluate the current state of the field and to describe how the field is working to test existing theories (outcome 4)

Part 2: Defense of a Research Objective Through a Chalk Talk

At the conclusion of part 1, it is recommended that the committee and student take a short 10- to 15-minute break before the student presents a 15 minute “chalk talk” (may be done on PowerPoint slides). This talk will describe how the student’s current research addresses a key gap in the field ***that is raised in the Synthesis Paper***.

Questions addressed by the student in the “chalk talk” might include:

- What was one of the primary research questions (in both a broad and specific framing) that was identified as a key gap-in-knowledge in the Synthesis Paper?
- Why is addressing that research question of broad importance to the field?
- How does this gap-in-knowledge lead to the development of the central hypothesis?
- How will this hypothesis be specifically tested (i.e., specific predictions and an experiment to test them)?

The chalk talk is intended to be a brief 15-minute presentation, walking the QE committee through at least one hypothesis, two predictions, and at least one experiment to assess those predictions. **This is not a complete dissertation outline, nor is it a presentation on the entirety of the student’s dissertation plan.** Rather, the student should focus on one aim/objective of their current research that addresses a key gap-in-knowledge addressed in the Synthesis Paper. In most cases, this aim/objective will become a part of the student’s eventual dissertation plan, offering good practice for developing their dissertation outline, due in the 5th semester.

This chalk talk is meant to evaluate the student’s ability to independently test hypotheses through the design of novel research (outcome 5). Essentially the student will take one of the key gaps identified in their synthesis paper and present and defend them. Students should describe the central hypothesis, the rationale, and offer an overview of the one aim/objective presented, including the design of an experiment to test the hypothesis. The chalk talk will be followed by discussion and questions that will allow the committee to evaluate the student’s ability to rationalize how their proposed research design will test their selected hypotheses (outcome 5) and to clearly communicate scientific understanding and ideas to scientific audiences in a clear, logical, and compelling manner (outcome 6). Students are encouraged to select the topic of their chalk talk in consultation with their dissertation advisor and to practice their chalk talk with fellow students prior to the oral QE (similar to the written exam, persons with a PhD will not assist). However, the dissertation advisor will not directly assist the student in their preparation for the oral examination after the submission of the written exam.

G. PROCESS OF EVALUATION and contingencies if student fails the written and/or oral exam)

1. To pass the qualifying exam, at least two of the three committee members must have rated the student’s performance as acceptable for both the written and oral sections.
2. Three potential outcomes are possible:
 - a. The student is found to pass both the written and oral defense.
 - b. The student is found to fail the written component. At the discretion of the committee, the student can have a second opportunity to rewrite the Synthesis Paper. The student needs to pass with at least two of the three committee members rating the student’s performance acceptable on the second chance prior to start of the fifth semester.
 - c. The student is found to pass the written component but fails to pass one or both parts of the oral exam. At the discretion of the committee, the student can have one opportunity to retake one or both parts of the oral exam. The student needs to pass with at least two of the three committee members rating the student’s performance acceptable on the second chance, prior to start of the fifth semester.
3. If passage is not achieved prior to the start of the student’s fifth semester, they will be dropped from the Ph.D. program. However, with departmental approval, the student may have the option

to pursue work towards a Master's degree.

4. After any attempt of the Qualifying Exam, each committee member will indicate a pass or fail status on the "Doctoral Qualifying Examination Evaluation" form and the chair of the committee additionally needs to indicate pass or fail on the "Doctoral Qualifying Examination Committee Chairperson's Summary" form. These forms are filled out for each attempt whether the student has passed or failed. If the committee determines that either portion of the exam, written or oral, needs to be repeated then the forms should indicate a failed exam. After the student has successfully passed both portions of the qualifying exam, the doctoral mentor will fill out the "Advancement to Doctoral Candidacy" form. All DocuSign forms are available through the graduate school's website, and it is the responsibility of the student and the committee chair to initiate the process.
5. In all cases, whether pass or fail, the documents will be turned in. If the student is asked to repeat some aspect, then a second set of paperwork will be turned in.

SECTION IV: DISSERTATION PROPOSAL/OUTLINE

The function of the dissertation outline is to demonstrate a thorough understanding of the research problem being addressed by the student and the experimental/observational approaches being used. The outline will provide the student's dissertation advisory committee with evidence of the significance of the problem and a justification for the proposed experimental/observational directions being followed. The dissertation advisory committee should discuss any specific instructions with the student when they pass their qualifying exam. Note that the Marquette University Graduate School refers to a "dissertation outline" as a plan for the proposed dissertation. In the Department of Biological Sciences, this outline is considered a "dissertation proposal."

Dissertation Proposal Format

The dissertation outline should be a 7-page document (1 specific aims/project summary page, and 6 main body pages, 1" margins, 6 lines per inch, with 11 point Times New Roman or 11 point Arial font). Outlines should focus on the overall research problem(s) being addressed and the experimental approaches used to answer these questions. For many students, this proposal may outline approximately 2-3 dissertation chapters framed in a common conceptual framework around a central research question. The specific aims or project summary page should follow the format of an NIH specific aims or NSF project summary page. The main body of the dissertation outline should include the following sections:

- 1) **Specific Aims or Objectives** (aims/objectives that your dissertation will address – each may be related to a chapter of your dissertation, conceptual linkages among aims/objectives should be detailed in the sections above). Each aim/objective should include both the specific hypotheses that will be addressed in that aim/objective as well as relevant approaches/methods to test those hypotheses. It will be up to the student and research advisor whether this section appears first (like an NIH proposal) or is integrated into the body of the proposal (like a NSF proposal)
- 2) **Intellectual Merit or Significance** (concise statement of the broad importance of your dissertation research and the broad gap in knowledge that your research will fill).
- 3) **Conceptual framework or Research Questions** (overarching research question and central hypotheses/paradigms that will be evaluated).
- 4) **Background** (not meant to be an exhaustive review of literature, only discussing literature that is relevant to the conceptual framework and central research questions).
- 5) Other sections/elements to consider including the **system of study** (description of your study system), **expected and alternative Outcomes** (other hypotheses or results that are not necessarily expected but could be observed, methods to address these alternative outcomes, and how you will make inference if they are detected). This section could also include potential problems and alternative solutions where potential problems and/or issues are identified along with what can be done to address those potential issues.
- 6) **References** (not included for page limits).

A dissertation proposal/outline approved and **signed by the student's mentor** must be submitted to the other members of the dissertation advisory committee **no later than Wednesday before Thanksgiving of the student's fifth semester (although we strongly recommend submitting the outline to a student's committee prior to the October mid-term break)**. A departmental form ("Preliminary Approval of Dissertation Outline by Major Professor/Notice of Receipt of Dissertation Outline", obtainable from the assistant to the Graduate Affairs Committee) is signed by all committee members at this time and returned to the assistant to the Graduate Affairs Committee to document that this deadline has been met. At this point, this is a "hard copy" form but we hope to move this form to a DocuSign by 2024.

The dissertation proposal/outline will be discussed at the student's advisory committee meeting in the second half of the 5th semester, and committee members are obligated to provide written comments to the student at this time using a standard rubric (see appendix). To accommodate the scheduling of this committee meeting, the mini-seminars of third-year students will be scheduled in the second half of their 5th semester or beyond. After receiving comments, an approved copy and the [Outline for Dissertation, Thesis, or Professional Project](#) form (obtained from the Graduate School's web site) with the requisite signatures (student's major professor, a minimum of all but one of the members of the student's advisory

committee, and the Department Chair) must then be submitted to the assistant to the Graduate Affairs Committee by the first day of the student's 6th semester. If the research involves human subjects, vertebrate animals, or radioisotopes, the Office of Research and Sponsored Programs' forms and related information must be attached to the dissertation outline. It is the obligation of the student to submit the dissertation outline and accompanying paperwork to the Graduate School **by the last day of classes at the end of the 6th semester.** (<https://www.marquette.edu/grad/forms.php>).

If a dissertation outline approved by the mentor is not submitted by Thanksgiving break of the student's 5th semester (*i.e.*, of the semester following completion of the Ph.D. Qualifying Exam) to the other members of the dissertation advisory committee, the student **will not be allowed to apply for the next Marquette University Fellowship, Schmitt Fellowship, Jobling Fellowship, or Raynor Fellowship competitions.** If a final approved plan with all required signatures is not submitted by the end of the first week of the 6th semester to the Graduate School, **financial support may be terminated at the discretion of the Graduate Affairs Committee.**

Reinstatement of financial support will be contingent upon submission of an approved research plan. Students should register for dissertation research credits (BIOL 8999) starting in their 3rd year, *i.e.*, in the semester following completion of their Ph.D. Qualifying exam.

SECTION V. DISSERTATION AND DEFENSE

A. Preparing the dissertation document

The doctoral research program will be carried out under the supervision of a faculty advisor. The resulting dissertation must represent an original research contribution, demonstrating substantial achievement and documenting considerable evidence of independent research. In content, thoroughness, and clarity, it must measure up to the standards of research articles currently being published in critically refereed professional journals of the field. **The student must have at least one first author research paper submitted for publication before a defense of the dissertation can be scheduled.**

B. Resources

There are a number of useful resources for your dissertation available on the Graduate School website (<https://www.marquette.edu/grad/forms.php>), including detailed formatting requirements and descriptions of various stages of the dissertation process (look under the doctoral dissertation forms tab). Please review all information on the Graduate School website about dissertations – this information is likely more up-to-date than this handbook. Before submitting the dissertation, the student should obtain a copy of current directives from the [Graduate School web site](#).

[Dissertation directives from the Marquette University Graduate School](#)

(Here is where you find detailed formatting information)

[Final checklist for dissertation submission](#)

(Here is where you find general formatting information)

C. Public defense announcement

To set a date for the public defense of a dissertation, students must complete an “[Announcement of Public Defense of the Dissertation](#)” form (available from the Graduate School web site). This completed form must be submitted to the assistant to the Graduate Affairs Committee **at least two weeks** prior to the date of the defense. The student should be aware that this entails having submitted the dissertation for review to the advisory committee members two weeks before the defense. **[NOTE: Since the completed form submitted to the Graduate School requires the signature of all committee members, the defense date may be delayed if a complete and carefully edited draft of the dissertation is not handed to the committee members at the same time. The student is required to inform the assistant to the Graduate Affairs committee of any changes to the dissertation defense date or plans.**

After the doctoral candidate has submitted the completed dissertation to their dissertation advisory committee, the student will be eligible to take the final oral examination. This examination, administered by the student’s dissertation advisory committee, will largely constitute a defense of the dissertation, and is designed to allow the student to demonstrate command of the chosen area of research specialization. A student’s defense will be deemed satisfactory if approved by the examiners with no more than one dissenting vote.

D. Public Seminar

A public seminar assesses the student’s ability to communicate scientific understanding and ideas to scientific audiences in a clear, logical, and compelling manner (one of the Biological Sciences Grad Outcomes). Each doctoral candidate is required to present a formal seminar on their research to the department. Normally, this presentation constitutes the student’s final public defense of the dissertation.

E. Private defense and approval of the dissertation

The student will meet privately with their dissertation committee. All committee members must be present (in person or virtually) for the dissertation defense. Approval of the dissertation is indicated by obtaining the signatures of a minimum of all but one advisory committee members on the [Dissertation Approval Form](#). Generally, final approval will require revision of the dissertation after the dissertation defense is conducted, to address criticisms and suggestions from the examining committee. Substantial revisions of

the written document may be required even though the defense itself is deemed successful. Approval of the dissertation usually constitutes the last requirement for a doctoral degree and makes the candidate eligible for conferral of the degree.

SECTION VI: MASTER'S DEGREE REQUIREMENTS

A. Lab rotations.

Laboratory rotation will be conducted similar to doctoral lab rotation (see section 2A).

B. Master's advisor and advisory committee

After the third rotation (usually completed in by the first day of classes in spring semester), students will be matched to a lab. The faculty member will become the student's thesis advisor. Before matching, the Director of Graduate Studies of their designee will be responsible for advising and approving all course selections for graduate students until dissertation advisor is assigned.

The committee will consist of no three members for the master's student, at least two of whom must be from the graduate program. Any members from outside the University must provide a C.V. The committee is appointed by the Department Chair upon recommendation of the student's major professor, following consultation with the student.

C. Program planning

A student's program of study and research will be decided by the student and their thesis advisory committee. The **advisory committee will meet before the last day of second semester** to review the student's background and decide upon a program of coursework. For this meeting, the student should prepare a list of undergraduate and graduate courses already taken that are relevant to the field of study, the grades obtained in these courses, and where the courses were taken. In addition, the student, in consultation with the thesis advisor, should prepare a written plan of coursework for consideration by the committee at this meeting.

A formal [Master's Program Planning Form](#) must be initiated through DocuSign on the graduate school website. This form must be submitted **no later than the end of the student's second semester**. The deadline is extended to the end of the 5th semester for master's students who have switched from the PhD program.

The Program Planning Form is a binding contract between student, department, and Graduate School and specifies the exact requirements and expectations of the student and their advisory committee. This contract must be amended if any additions or deletions are to be recognized. The student must complete all requirements as listed on the form prior to graduating. Some requirements may prevent the student from being advanced to candidacy if not fulfilled.

D. Coursework and requirements

Master's students must complete a total of 30 credit hours, including 21 credit hours of course work and research, 3 credit hours of seminar courses and 6 credit hours of thesis work. Eighteen of the 30 credit hours must be taken in biological sciences. During each term in residency, master's students are also required to enroll in [BIOL 6952](#) Department Colloquium.

Any student failing to enroll for one or more academic year semesters must petition for readmission upon return. Reinstatement is possible if departmental endorsement is given, and the student has no outstanding balance owed to the university. The Dean of the Graduate School and the major department jointly decide if a student will be readmitted. More detailed information is available in the [Graduate School Bulletin](#).

E. Teaching experience

All graduate students in Biological Sciences are required to have two semesters of teaching experience in partial fulfillment of the requirements for the master's degree. Teaching experience, if properly documented, may be accepted from another institution.

F. Master's comprehensive examination

The comprehensive examination is an oral defense of the master's project (this oral examination occurs simultaneously with the submission of the master's thesis proposal, as described in the section below). A student cannot pass this examination unless their performance is approved by **all three** members of their

examination committee. If a student fails the examination, they may repeat it with the approval of the examining committee. A second failure will automatically drop the student from further consideration for master's candidacy. Ordinarily, the examination should be taken during the fourth semester from the time of enrollment. In the case of a student transferring from the Ph.D. to the master's program, if the student has passed the Ph.D. qualifying exam, that exam may substitute for the master's comprehensive exam at the request of the student's thesis advisory committee and the department. Students that did not pass the Ph.D. qualifying exam will be required to undertake and pass the master's comprehensive exam by the end of the first month of the following semester.

Once passed, the student should route a comprehensive examination DocuSign form through the graduate school website (<https://www.marquette.edu/grad/forms.php>). This form will be routed through the committee chair and the director of graduate studies.

Students should register for thesis research credits (BIOL 6999) starting in their 3rd year.

G. Master's thesis proposal/outline

The function of the thesis outline is to demonstrate a thorough understanding of the research problem being addressed by the student and the experimental approaches being used. The outline will provide the student's thesis advisory committee with evidence of the significance of the problem and a justification for the proposed experimental directions being followed. The thesis outline will consist of:

- 1 page specific aims page
- 5 pages research strategy
- References (no page limit)

A thesis outline must be submitted to the advisory committee by the beginning of the fourth semester. It is advised to prepare the document in conjunction with the Master's comprehensive exam (see section above). Committee members will provide written comments to the student. Passing of the thesis outline must be documented with DocuSign form through the graduate school (<https://www.marquette.edu/grad/forms.php>) entitled Outline/proposal for thesis form.

If the research involves human subjects, vertebrate animals, or radioisotopes, the Office of Research and Sponsored Programs' forms and related information must be attached to the research plan. The assistant to the Graduate Affairs Committee submits the thesis outline and accompanying paperwork to the Graduate School **by the end of the last week of the 4th semester**. This timeline may be extended in the case where a student passes the Ph.D. qualifying exam in the 4th semester prior to transferring to the master's program.

If a final approved plan with all required signatures is not submitted by the end of the first week of the 6th semester to the Graduate School, **financial support may be terminated at the discretion of the Graduate Affairs Committee**. Reinstatement of financial support will be contingent upon submission of an approved research plan.

H. Academic honesty and language requirements

Please see section 2I, and 2J for these requirements.

I. Residency requirements

There is no residency requirement for students working toward a master's degree.

J. Time limitations

Students are expected to complete all requirements for their degrees in the time allowed as stated in the [Graduate School Bulletin](#): six years for master's degrees. The time period begins with the date of admission to degree status and the start of the time period is not affected by transfer credit taken prior to admission to Marquette. More information may be found in the Graduate School Bulletin.

K. Other activities of the Master's program.

As outlined in section 2N, all Master's students will participate in graduate seminars, journal club, and departmental colloquium. Students are also expected to contribute to graduate student invited speaker and other departmental service.

L. Thesis Defense

Before the thesis defense, the student should obtain a copy of [current directives](#). These may be obtained from the Graduate School web site.

This examination administered by the student's thesis advisory committee is designed to allow the student to demonstrate command of the chosen area of research specialization.

A student's defense will be deemed satisfactory if approved by the examiners with no more than one dissenting vote.

M. Final Seminar

A final seminar is necessary to complete the thesis defense. After the master's thesis is submitted to the thesis advisory committee, the student must present the research to the department in a seminar format.

N. APPROVAL OF THESIS

Approval of the thesis is indicated by submitting a DocuSign form "Thesis approval form" through the graduate school website (<https://www.marquette.edu/grad/forms.php>). Generally, final approval will require revision of the thesis after the defense is conducted, to address criticisms and suggestions from the examining committee. Substantial revisions of the written document may be required even though the defense itself is deemed successful. This approval usually constitutes the last requirement for a master's degree and makes the candidate eligible for conferral of their degree.

SECTION VIII. FINANCIAL AID

A. Teaching Assistantships

Admitted students are typically supported by teaching assistantships unless supported by an external grant to the department or an individual faculty member of the department. These assistantships provide a nine-month (40 week) stipend. Teaching assistants can register for up to nine credit hours of coursework each semester and perform full research programs but pay no tuition or laboratory fees. Teaching assistants and fellows will be allowed to take graduate courses that fulfill their degree requirements in the summer sessions free of charge so long as the credits involved remain within the total of 18 credits awarded with these assistantships during the twelve months beginning each June 1st. If additional credits are needed, a request for a tuition scholarship should be made to the Graduate Affairs Committee.

B. Extended Departmental Support

For students going into their sixth year

Graduate students who continue to make satisfactory progress toward the doctoral degree will normally receive departmental support for five years. After completion of five years, further support will be made on a case-by-case basis. Students wishing continued departmental support must petition the Graduate Affairs Committee by the end of the student's ninth semester. Students will be notified in writing at the beginning of their tenth semester whether the petition was approved.

Support for 7th year and beyond

Students beyond their sixth year may petition the Graduate Affairs Committee for extended support for an additional semester provided T.A. lines are available. Under no circumstances will a student beyond six years be considered for a M.U. Fellowship.

Prior to submission of the request, the student's advisory committee must meet to review the student's progress and establish a set of well-defined research goals for the student to achieve during the support period under consideration. The student request should be sent to the Director of Graduate Studies and include:

1. The semester of the request
2. A one-page summary of the established well-defined research goals to be completed during the period of support based on a committee meeting.
3. Letter from the faculty mentor that they support the student's request and verification that the committee is aware of the defined goals.
4. (Only after the first request) progress report of meeting previous goals

Contingent upon receipt of a satisfactory evaluation based on submitted materials, the Graduate Affairs Committee will consider the student for a teaching assistantship for one semester at a time. Depending on the availability of T.A. lines, requests for additional support will be considered on a semester-by-semester basis. Each subsequent request must be accompanied by an independent application that includes the first three items above and an additional document showing that the previously established research goals have been met.

Summer support beyond the sixth year must be requested jointly by the student and adviser in an application Graduate Affairs Committee by February 15th.

Normally, master's students can receive no more than three years of support as a teaching assistant.

C. Tuition Scholarships

Tuition scholarships are extremely limited. Only students who are supported on fellowships that do not provide tuition support or on external grants can request tuition. The scholarship requests should be addressed to the Graduate Affairs Committee. Scholarship holders are expected to carry on full-time programs of coursework and research. Note, students should pay attention to their original offer letter. All

Marquette teaching assistantship and RA-ships will indicate how many credits will be covered (usually up to nine credits). Students on these types of support are responsible for paying any tuition beyond what is indicated in their offer letter.

D. Summer Support

It is expected that students will maintain active, full-time academic work during the summer. This usually takes the form of active research involvement but may also include regular or extramural courses. Financial support is available to all students making acceptable progress. As a general policy, all faculty members with research grants will make every reasonable effort to support their students. However, every effort will be made to give some support to students whose mentors do not have extramural grant support. All students are expected to devote a minimum of 40 hours/week to their academic work during the summer.

E. OUTSIDE EMPLOYMENT

Students are permitted to hold external employment while also holding a TA/RA/GA appointment, **if the funding source for the assistantship allows for such an arrangement** (Note that most funding agencies **do not** permit students to seek outside employment while they are being supported on funds provided by the agency). Domestic students on assistantships can obtain external employment of up to 10 hours/week without seeking permission from the graduate school. Those on assistantships who wish to work *more* than 10 hours/week in external employment must have a consultation session with the Graduate School to ensure that the student has a plan for meeting the demands of graduate education. International students will continue to be held to the guidelines published by the Marquette Office of International Education <https://www.marquette.edu/oie/current-students/f1-student-employment.php>.

It is strongly recommended that students discuss plans for outside employment with their thesis/dissertation adviser. While students are entitled to obtain external employment, both the student and adviser should consider how/if this may impact the student's degree progress and their ability to satisfactorily complete their teaching and research responsibilities.

F. Income Tax Liability and Withholding

All graduate assistants should keep themselves continually informed of all clarifications and/or technical corrections of the tax laws by the IRS. Assistants are reminded that taxes are ultimately a matter between themselves and the IRS.

SECTION VIII: FELLOWSHIPS AND AWARDS

The Department of Biological Sciences and the Graduate School have several fellowships that are awarded to qualified students on a competitive basis. Announcements for the solicitation of applications and proposals will be made well in advance of deadlines. Generally, a student will be limited to three years of fellowship support. All applications should strictly follow this guideline. Any questions should be directed to the DGS prior to the submission of an application.

A. MU Fellowship

The MU fellowship is awarded on a competitive basis to students working under the mentorship of faculty in the Biological Sciences department. The application is structured to further develop student grant writing skills.

The following are the guidelines for preparation and submission of research proposals by graduate students who are applying for a MU Fellowship.

Eligibility. Students eligible for the MU fellowship must be:

- A Ph.D. student in the department of Biological Sciences
- Completed their first year (two semesters) of study
- Completed at least 15 credit hours of approved course work
- Are performing research with a faculty member based in the Department of Biological Sciences.
- For students who have completed their second year, they must have passed the qualifying exam before the beginning of the semester for which the fellowship is awarded.
- For students in their third year, they must have a mentor-approved dissertation outline submitted to their dissertation advisory committee by the Wednesday before Thanksgiving of their 5th semester.

Types of Proposal.

There are two types of proposal:

1. Original proposals submitted by students who have not previously had fellowship support.
2. Renewals, submitted by students who have previously been **supported by a MU fellowship** in the previous year. In addition to the 5-page proposal, students submitting renewals must submit a separate one-page Progress Report following the main proposal describing the progress made **only during the previous year of support**. Overlap between the progress report and the preliminary data section of the proposal is permitted and expected. This appendix must state the specific aims or goals from the previous year of support, progress made toward those aims/goals, and rationale for any changes in research direction.

Proposal Guidelines.

The Graduate Affairs Committee has set the following guidelines:

1. The proposal must be composed by the applicant. The applicant may not take sentences or paragraphs from other proposals or manuscripts unless they are the first author of those sources.
2. The advisor is not permitted to read and/or revise the proposal. This rule extends to any individual holding a PhD (i.e. post-doctoral fellows, students in the lab who have an approved dissertation by the graduate school, committee members, etc.).
3. Fellow graduate students may read and comment upon the proposal insofar as time, and enthusiasm, permits. This is for the purpose of pointing out areas that may be unclear to someone who is not personally involved in the project. Revisions should be made solely by the applicant. Students are also encouraged to seek feedback from professionals in the writing center.

Proposal Format. The purpose of the proposal format is to provide training in the preparation of proposals to an extramural funding agency. All proposals must adhere to the following format to be eligible for review.

- Cover page with the title of the proposal and the student's name
- Proposal must be single-spaced
- 0.5-1.0-inch margins
- 11 pt Times New Roman or Arial font
- Maximum 5 pages without references (one additional page is allowed only for renewals to discuss the progress report)
- Must contain a specific aims section, in addition to labeled sections described below
- Figures must be embedded in the five pages and stay within the margins
- Page numbers at the bottom of the page
- Consistently formatted citations and bibliography

The proposal must consist of the following sections in this order:

1. The **specific aims** of the project. This will be very brief, on the order of a paragraph or a few sentences.
2. **Background and significance.** Include in this section a brief critical survey of the pertinent literature, including data pertaining to the project gathered by other members of the laboratory. Describe the contribution that the proposed project will make to the state of knowledge in the field.
3. **Progress report (for renewals only).** This section is to report the progress of the previous year of support. Limited to one page. *Note that this section could be embedded within the proposal or attached at the end of the five pages.*
4. **Preliminary results.** Include in this section the data obtained by the applicant pertaining to the proposed project. (In the case of prior recipients, this section may overlap with the required additional one-page report of progress during year of support).
5. **Proposed research.** The experimental design should be described in sufficient detail to convey to the reviewers your understanding of the principles involved. Succinctly describe enough details (probe, parameters to be measured, controls, etc.) to demonstrate that you understand how to design a meaningful experiment, but the emphasis is on the design and its rationale, not methodological details. The proposed research will focus on research plans for the coming year, and not on the overall plans for the entire PhD program.
6. Include a **bibliography** of full citations (titles included) for literature referred to in the proposal. The bibliography is not included in the page limit.
7. **C.V.** Submit a current curriculum vitae, which is not included in the page limit.

Due date. Proposals are generally due during the first few weeks of January. A letter from the graduate affairs committee will indicate the day and time for the submission deadline. No exceptions.

Evaluation. Fellowships will be awarded primarily based on the quality of the research proposal. M.U. Fellowship applications will be evaluated along the same lines as would a proposal to an extramural funding agency. In composing the proposal, the applicant should keep in mind that reviewers are scientifically literate, but most will not be in the applicant's area of expertise. It is incumbent upon the applicant to explain the significance and rationales of concepts and procedures that may be unfamiliar to a reviewer. The keys to a successful proposal are to convince the reviewers that the goals are important, the applicant is capable, and the experimental plan is feasible, well thought-out, and the best way to achieve the goals. Criteria for the amount and quality of the preliminary data will be higher for students who have had previous fellowship support, and for more senior students.

An *ad hoc* committee, consisting of at least three faculty members who are not the major professor of the applicants, will be established each year to review the M.U. Fellowship applications. This committee may

or may not include members of the Graduate Affairs Committee (GAC). Many times, a member of the GAC will attend the meeting to ensure discussions are fair and unbiased, however, if not on the ad hoc committee, the GAC member will not play a role in decision making. The original proposals and renewals will be reviewed as a single group. Previous successful proposals will be kept on file and are subject to review by the evaluation committee as part of the fellowship competition.

Students who submit applications for fellowship support will be provided with a brief critique of their application to aid them in the preparation of future applications. The critique will be provided by the fellowship review committee. It may be either oral or written, and at the discretion of the committee and the Director of Graduate Studies.

Awards. The Director of Graduate Studies will notify the student and faculty mentor in writing of the award. The student must accept (or decline) the award in writing. Acceptance will ensure that:

- One-year stipend, set by the graduate school
- Up to 9 credits of tuition. Any credits taken beyond 9 credits will be charged to the student.
- Student is responsible for journal clubs. Students supported by M.U. fellowships will be responsible for organizing journal clubs for their fellow graduate students. Each M.U. fellow will be expected to organize (or co-organize with one other M.U. fellow) a journal club for one semester during the fellowship period. Organizers will be responsible for choosing the overall topic of the journal club, scheduling a meeting time, signing up presenters, and disseminating information to participants. MU Fellows should consult with the Graduate Affairs Committee for details regarding the format of the journal club.

B. MARQUETTE UNIVERSITY DISTINGUISHED SCHOLARSHIPS AND FELLOWSHIPS

The Graduate school offers several university-wide fellowships that students can apply for, should they be eligible. For the most up to date deadlines and information on Graduate School awards, please review the [Graduate School website](#). Typically, the department will fund the difference between various on-campus fellowships and Biological Science Teaching Assistantships.

RICHARD W. JOBLING DISTINGUISHED RESEARCH ASSISTANTSHIP

Eligibility. Students enrolled or admitted to PhD. Programs for NSF-defined STEM disciplines. Students must have advanced to PhD candidacy by the time of their nomination. Nominees who have passed their Qualifying Exams will hold an advantage over nominees who haven't yet taken them. Departmental policy is that, for students in year 4 and beyond to be considered for nomination, they must have their dissertation outline approved by the graduate school prior to the application deadline.

Internal Application Deadline. Approximately first week in November. Since deadlines are based upon the announcement by the graduate school, the due dates are subject to change. The department administrative assistant will send out notifications and forms.

Duration: One year. Students can apply for a renewal for a second year.

Internal Application.

1. The MU Grad School Uniform Application for Distinguished Fellowships and Assistantships
2. A written statement by the student (3-page maximum) that addresses the student's academic work and research, its impact on the field and/or greater society, and the applicant's plan for the future.
3. A curriculum vitae clearly noting whether publications are published, in press, or under review. Do not list publications in preparation.
4. Two letters of recommendation from faculty.

Departmental Review Procedures. A faculty committee will review the applications and recommend up to two students for nomination to the University committee. Ad hoc faculty members may be added to the Graduate Affairs Committee specifically for the evaluation process. Students will be informed of

the status of their nomination in advance and may be asked to modify their statement prior to submission of their nomination package to the graduate school. The DGS will write the letter of nomination and will submit the complete nomination package to the graduate school.

University Review Procedures. Selections will be made by a committee consisting of two representatives from the Graduate School and three representatives from the pool of DGSs serving the STEM-discipline programs.

ARTHUR J. SCHMITT LEADERSHIP FELLOWS PROGRAM

Eligibility. Based on guidelines of the graduate school, students registered in the Ph.D. program are eligible to apply for the Schmitt fellowship. Nominees will hold an advantage if they have passed the Ph.D. qualifying examination and completed their course work by the time of nomination. Departmental policy is that, for students in year 4 and beyond to be considered for nomination, they must have their dissertation outline approved by the graduate school prior to the application deadline.

Internal Application Deadline. Approximately first week in November. Since deadlines are based upon the announcement by the graduate school, the due dates are subject to change. The department administrative assistant will send out notifications and forms.

Duration: One year. Schmitt Fellowship recipients from a previous year may reapply for a second (but not a third) year of support on a competing basis.

Internal Application.

1. The MU Grad School Uniform Application for Distinguished Fellowships and Assistantships
2. A written statement by the student (3-page maximum) that addresses the student's academic work and research, its impact on the field and/or greater society, and the applicant's plan for the future
3. A curriculum vitae clearly noting whether publications are published, in press, or under review. Do not list publications in preparation
4. Two letters of recommendation from faculty.
5. Biographical statement (1 page)
6. Statement of leadership (1 page)
7. Statement of values (1 page).

Departmental Review Procedures. A faculty committee will review the applications and recommend up to two students for nomination to the University committee. Ad hoc faculty members may be added to the Graduate Affairs Committee specifically for the evaluation process. Students will be informed of the status of their nomination in advance and may be asked to modify their statement prior to submission of their nomination package to the graduate school. The DGS will complete the academic qualifications rubric, write the letter of nomination, and will submit the complete nomination package to the graduate school.

Graduate School Review Procedures. Selections are made by a committee of three faculty representatives from three different colleges.

THE REV. JOHN P. RAYNOR, S.J. FELLOWSHIP

Eligibility. Students registered in the Ph.D. program and who have passed the Ph.D. qualifying examination prior to the application deadline are eligible to apply. Students must submit an approved dissertation outline and program planning form to the graduate school by the time they begin the fellowship (August). Doctoral students can have no doctoral grade less than a B. Departmental policy is that, for students in year 4 and beyond to be considered for nomination, they must have their dissertation outline approved by the graduate school prior to the application deadline.

Deadline. Approximately first week in November. Since deadlines are based upon the announcement by the graduate school, the due dates are subject to change. The department administrative assistant will send out notifications and forms.

Internal Application.

1. The MU Grad School Uniform Application for Distinguished Fellowships and Assistantships
2. A written statement by the student that addresses the student's academic work and research, its impact on the field and/or greater society, and the applicant's plan for the future.
3. A curriculum vitae clearly noting whether publications are published, in press, or under review. Do not list publications in preparation.
4. Two letters of recommendation from faculty.

Departmental Review Procedures. A faculty committee will review the applications and recommend up to two students for nomination to the University committee. Ad hoc faculty members may be added to the Graduate Affairs Committee specifically for the evaluation process. Students will be informed of the status of their nomination in advance and may be asked to modify their statement prior to submission of their nomination package to the graduate school. The DGS will write the letter of nomination and will submit the complete nomination package to the graduate school.

Graduate School Review Procedures. Selections will be made by a committee consisting of three faculty members, the dean of the Graduate School, and a distinguished panelist from the broader MU community.

C. NON-COMPETITIVE RESEARCH ASSISTANTSHIPS FROM FACULTY GRANTS

In some cases, research assistantships are funded through the research grants of individual investigators in the Department and are arranged by mutual agreement between the student and their research mentor. Assistantships may be continued through the summer months. **Students on faculty grant supported-research assistantships must have their mentors apply to the Office of Research and Sponsored Programs for tuition scholarships.** Faculty and student are responsible for submitting forms to ORSP for coverage of tuition from grants. <https://www.marquette.edu/orsp/documents/student-grant-support-form.pdf>

D. COMPETITIVE SUMMER RESEARCH SCHOLARSHIPS

Departmental scholarships are available annually and periodically for use as summer stipend for graduate students. All available awards use the same application.

Application. Complete the summer research scholarships application form electronically, available from the assistant to the Graduate Affairs Committee.

Due. Approximately mid-March

Award Committee. An *ad hoc* committee consisting of three faculty members with broad areas of expertise in biology, who are not the major professor of the applicants, will be established to review the applications. The committee may or may not include members of the Graduate Affairs committee. Applications will be evaluated based on providing sufficient background for the committee to understand the significance of the research to the field and the student's dissertation project while also providing sufficient detail for the committee to understand the research plan specifically to be carried out over the summer months.

DR. CATHERINE GROTELUESCHEN SCHOLARSHIP FUND FOR BIOLOGY

Description. The Department of Biological Sciences receives funds from the Dr. Catherine Grotelueschen Scholarship Fund for Biology to provide financial assistance towards the summer stipend of the recipient. It is envisaged that this award would be a supplement to any additional summer support the student may receive from faculty extramural or departmental sources, the sum of which will not exceed the current maximum summer stipend agreed upon for all graduate students in the department.

Award. This scholarship typically makes up to two to three annual awards of approximately \$2,500 to graduate students based in the Biological Sciences department.

Eligibility. To be eligible to apply for this award, graduate students must be in the Department of Biological Sciences, have advanced to Ph.D. candidacy and have submitted an approved dissertation outline to the Graduate School by the time of application. Students may apply for and receive these awards on more than one occasion.

DENIS J. O'BRIEN FELLOWSHIP FOR BIOLOGY

Description. The Department of Biological Sciences periodically receives funding from the Denis J. O'Brien Fellowship Fund for financial assistance in the form of a summer stipend.

Award. Approximately \$2500 and is offered every other year to students in biological sciences.

Eligibility. To be eligible to apply for this award, graduate students must be in the Department of Biological Sciences, have advanced to Ph.D. candidacy and have submitted an approved dissertation outline to the Graduate School by the time of application. Students may apply for and receive these awards on more than one occasion.

E. TRAVEL AWARDS

GRADUATE SCHOOL TRAVEL GRANTS

The Graduate school will award up to \$500 on a competitive basis to graduate students with their program planning form on file to present their research at professional meetings. See the [Graduate School website](#) for guidelines and current due dates.

DEPARTMENTAL TRAVEL GRANTS

Graduate students performing research with a faculty member in the Department of Biological Sciences may apply to the department for funds to present their work at a scientific meeting. Students are encouraged to seek other sources of funding as well (professional societies, the Graduate School). Applications should be directed to the Department Chair and should include (1) Name, date, and location of meeting; (2) Accepted abstract of the work to be presented; (3) Travel budget. Availability of funds for graduate student travel will depend on other priorities and the amount of available funds. Graduate students are urged to apply early. Application for graduate student travel funds must be signed by the student's major professor. Please refer to the department sharepoint site to find a docusign for travel requests.

F. OTHER RESEARCH AND ACADEMIC ACHIEVEMENT AWARDS

The following two graduate student awards are for students doing research with faculty based in the Department of Biological Sciences.

SCHOLL AWARD

Description. The Department of Biological Sciences receives funds from the Dr. Scholl Foundation in the amount of \$1,000 to make an annual award to a graduate student who has performed outstanding research as demonstrated by the publication or in press status of a first author manuscript in a peer-reviewed journal. This award is an honorary award and may be received only once.

Award. \$1,000 stipend award, individual plaque presented to student, and plaque with all recipients listed displayed in department.

Nominations. Eligible students or their faculty mentors should submit nominations to the assistant to the Graduate Affairs Committee at least 1 week prior to the Application due date.

Application.

1. First Author Paper published or in-press in a peer reviewed journal
2. Letter of support from faculty mentor highlighting significance of the work to the field, and detail the relative contribution of the nominated student (i) design and execution of the research and (ii) the writing and compilation of the manuscript

3. Student Statement: 1 page explaining significance of work/contribution to research and preparation of the manuscript

Due. Approximately mid-April

Award Committee. An ad hoc committee consisting of three faculty members, including members of the Graduate Affairs Committee who are not the major professor for any of the applicants, will review the applications. The award will be determined based on the significance of the work, and the student's contribution to the research and manuscript.

OLIVER H. SMITH ACHIEVEMENT AWARD

Description. This annual award is sponsored by the Oliver H. Smith Memorial Fund, to recognize exceptional academic achievement by a graduate student in the Ph.D. program of the Department of Biological Sciences. This award is an honorary award and may only be received once.

Award. \$1,000 stipend award, individual plaque presented to student, and plaque with all recipients listed displayed in department.

Nominations. Eligible students or their faculty mentors should submit nominations to the assistant to the Graduate Affairs Committee at least 1 week prior to the Application due date.

Application.

1. Student statement: 1-page detailing scholarly activities during dissertation studies (research contributions, publications, conference/poster presentations, mentoring activities, community outreach and/or service activities.)
2. Cumulative GPA
3. Letter of support from faculty mentor

Due. Approximately mid-April.

Award Committee. An ad hoc committee consisting of three faculty members, including members of the Graduate Affairs Committee who are not the major professor for any of the applicants, will review the applications. The award will be determined based on cumulative GPA, research activity, and student's scholarly achievements as described in application.

SECTION IX: RESEARCH RELATED GUIDELINES AND PROCEDURES

A. Radioisotope usage

No student will be permitted to use radioactive isotopes in a research lab, including lab rotations, before they have met the radiation worker safety requirements at Marquette University. This consists of attending a one-hour lecture, viewing two one-hour recordings, passing a quiz and completing the affirmation statement. The entire process is described here: <http://www.marquette.edu/orc/radiation-safety/become-radiation-worker.shtml>. If students have a previous exposure record, this must be on file at the Office of Research and Sponsored Programs before they can begin work with radioactive materials.

B. Animal Care and use, Biosafety compliance, and Institutional review board (IRB)

Marquette University Office of Research Compliance oversees animal research, biosafety, and human research on campus. Based on the requirements of their research, students may be required to undergo university training for animal care and use, biosafety, and human subjects research. Please consult for your dissertation or thesis advisor whether training is required. Ultimately, students will be required for training. More information can be found on the research compliance website (<https://www.marquette.edu/research-compliance/>).

C. Responsible Conduct of Research

Many federally funded grants require that all trainees undergo Responsible Conduct of Research training. The graduate school offers GRAD9953 Responsible Conduct of Research course, a zero-credit course available to only Marquette students to satisfy this training requirement. A description can be found at: <https://www.marquette.edu/research-sponsored-programs/responsible-conduct-of-research-rcr.php>. The course is offered every semester. Please consult with your dissertation or thesis advisor if training is required.

SECTION X: GRADUATE STUDENT WELFARE

A. Vacation Policy

Vacation more than two weeks within a 12-month period requires permission from the student's major advisor. University holidays are in addition to vacation time.

B. LEAVE POLICY

For temporary withdrawal policy please refer to the University Graduate Student Bulletin. Students seeking short term leaves of absence should consult with their faculty mentor and thesis/dissertation advisory committee in conjunction with the Graduate Affairs Committee.

C. Travel Policy for International Students

For students traveling outside of the United States **that will need to renew their visa for re-entry:**

1. Before your departure you are required to contact the Office of International Education to acquire any paperwork that is needed to facilitate your re-entry.
2. As a Biological Sciences student, there is a very high likelihood that you will be subject to "administrative processing", which can take several weeks.
3. Before administrative processing can begin you must schedule an appointment with the embassy, again a process that can take several weeks.
4. If you are being supported by a teaching assistantship and given that your re-entry may be delayed by as much as six weeks, you are strongly advised to avoid international travel during late summer and winter break as untimely delays may prevent you from fulfilling your teaching obligations.
5. If you choose to travel during times that may impact on your ability to perform your TA duties:
 - a. You must inform the assistant to the Graduate Affairs Committee, the Chair of the Graduate Affairs Committee, the Department Chair, your TA supervisor for the forthcoming semester, as well as your faculty research mentor before you leave. You must also keep the aforementioned individuals informed of any changes in your planned re-entry date.
 - b. You should expect deductions from your stipend that are commensurate with the time you are unable to perform your TA duties.

D. Travel policy for students undergoing international travel

Marquette University requires all students engaging in international travel for research conferences/meetings or field work must register with the Center for International Education. Please refer to [UG or GRAD International Travel Registration \(non-credit\)](#). Student will need to apply, get approval, and attend training for international travel.

E. Office Space

First-year graduate students will be assigned office space wherever accommodations are available. Students who have been accepted for graduate work (i.e., lab rotation) by a faculty member will be reassigned office space in or near the faculty member's laboratory.

F. Emergency Medical Care for Graduate Students

The Marquette University Medical Clinic is in the Walter Schroeder Health Sciences and Education Complex on the ground floor, southeast corner. Hours are posted on the clinic door (phone: (414) 288-7184). The Medical Clinic is an urgent-care facility available to all graduate students identified as full-time by the Graduate School. Office visit charges may be applied if the student does not carry the graduate student insurance policy. A student's spouse or immediate family is not eligible.

When the University Medical Clinic is closed (after Medical Clinic hours during the week or on weekends and holidays), call Public Safety at 8-1911.

Since the Marquette University Medical Clinic is not responsible for any expenses involved when a student consults a physician who is not a member of the Medical Clinic staff, graduate students should be advised to provide for their own health and medical emergency insurance coverage.

All work-related medical emergencies' (illness/accidents) should be reported to the Department Chair.

G. Health Insurance

Health insurance information can be found on the [Graduate School website](#). Graduate students are responsible for obtaining their own insurance but will receive a supplemental stipend of \$750 per year to help defray the cost. Students should go to the healthcare exchange at healthcare.gov for information on available independent policies. Graduate students may utilize the Marquette University Medical Clinic on campus for [core services](#) if they pay a semester fee of \$160 and \$70 for the summer session. [Additional services](#) are available at reduced cost for fee paying students.

H. Preparing Future Faculty & Professionals

The mission of the [Preparing Future Faculty & Professionals](#) (PFFP) Program is to enrich Marquette graduate students by providing distinctive personal and professional development opportunities to set them apart as leaders in their fields.

Throughout the academic year, PFFP sponsors colloquia and workshops which are open to all graduate students from all disciplines. These events focus upon creating an awareness of issues affecting the future of higher education and upon developing the knowledge and skills necessary for success on the job market. The event calendar is developed by students and receives support from faculty members from Marquette and from our cluster institutions, including UW-Milwaukee, Alverno College, Cardinal Stritch University, Carthage College, Carroll University, and UW-Parkside. The diversity of our cluster allows graduate students to explore other learning environments, and to make valuable contacts at other universities.

Participants will create an Individual Development Plan, attend at least 15 workshops, and develop a portfolio in their respective track. Workshops will cover core concepts, skills, technology, funding, career development, and personal development. Upon completion and submission of all the program requirements an official notation will be added to a participant's transcript.

For more information on PFFP, and its sponsored events e-mail: mupff@marquette.edu or visit their website at: <http://www.marquette.edu/pffp/>

I. Conduct

Refer to the Graduate School Bulletin to read the [University's code of conduct](#).

J. Drug-free Workplace Policy

Marquette University is committed to maintaining a drug-free work environment in which the safety and well-being of its community members are of utmost importance. The abuse of licit drugs and/or the use of illicit drugs directly interfere with the development and performance of the individual, and the effects of that use/abuse diminish the working environment for all. It is a policy of the University that drugs in the workplace will not be tolerated. Employees must abide by this policy as a condition of employment.

The unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited at the University. The controlled substances prohibited in the workplace include, but are not limited to, marijuana, cocaine, heroin, amphetamines, LSD, barbiturates, narcotics, or other drugs not prescribed by a licensed physician for the treatment of a current medical disorder.

Violations of this University policy, which includes unlawful conduct, will be subject to corrective action, up to an including suspension or termination for all classifications of employees, depending upon the severity and/or frequency of the violation. Corrective actions will be progressive and applied equally to all employees, except for those employees whose actions necessitate immediate and decisive disciplinary measures including suspension or discharge.

Corrective action normally will be administered in the following order:

1. Verbal Warning
2. Written Warning
3. Final Written Warning or Suspension
4. Suspension or Discharge

If an employee is convicted under a criminal drug statute for conduct in the workplace, the employee must report the conviction to their immediate University supervisor no later than five calendar days after the conviction. An employee so convicted may be subject to additional University action depending upon the individual circumstances.

SECTION XI. WEHR LIFE SCIENCES BUILDING RULES

5. Do not enter classrooms or laboratories where you have no specific business.
6. Under no circumstances are equipment or materials to be taken from a research or teaching laboratory without permission of the faculty member responsible for that area.
7. Lock all laboratories when they are unattended.
8. When entering or leaving the building be sure that the entrance doors have closed behind you.
9. When leaving the building, turn off the lights in all areas where you have been working.
10. Students should never leave purses or wallets exposed but should always put them in a drawer or cabinet (preferably locked). If you leave the laboratory or classroom, take your valuables with you.
11. Those using the lunchroom on the third floor are responsible for keeping it clean.

A. Office/Scientific Equipment

Office equipment may not be used by graduate students without consent of the office staff. Use of the photocopier are permitted for work related to research or teaching assignment. Please ask before using. Any shared department scientific equipment will require training before access will be granted.

B. Personal Phone Messages

The department office phone number (414-288-7355) may be given out as an emergency contact number. Should there be an emergency at your home, every effort will be made to contact you immediately.

C. Issuance of Keys and Swipe Card

Each graduate student will be issued keys/card access for those areas in which they have a legitimate reason to have access. All requests for keys/swipe access are authorized by the Department Chair. Key authorization forms may be picked up in the Department Office. Students requesting access to faculty offices and laboratories must also have approval of the faculty member. Keys issued to instructional areas for teaching assistants must be returned at the end of each semester.

D. After-Hours Access

Students (graduate and undergraduate) who must be in the Wehr Life Sciences Building after 5:00 p.m. and on Saturday or Sunday are **required** to carry their MU ID card and show it upon demand to Public Safety. Public Safety will take the ID and verify with their office that you have permission to be in the building.

SECTION XII. GRADUATE SCHOOL INFORMATION AND COURSE INFORMATION

The graduate school maintains an up-to-date course bulletin, including a program overview, requirements, links to university and graduate school policies, and course descriptions. For more information, please visit <https://bulletin.marquette.edu/graduate/biological-sciences-phd/#text>

There is also a Marquette University Graduate School Handbook that applies to all students who are supported on any departmental, grant, or university assistantship). The graduate assistant handbook is different from this departmental handbook by listing university policies and procedures that apply to all graduate students at Marquette University. Note that the Graduate School indicates that while departments, grants and the Office of Research and Sponsored Programs may have policies that supplement, but do not supersede, those in the Marquette University Graduate Assistant Handbook. Please visit the following link for the Graduate School Handbook <https://www.marquette.edu/grad/grad-assist-handbook.php>