**UNH Biochemistry Graduate Program**

**Graduate Student Handbook**

(This is a working draft, subject to revisions and approval by the biochemistry graduate faculty)

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1. Introduction

This handbook provides an overview of, and practical details about, the M.S. and Ph.D. degrees in Biochemistry. It outlines the usual sequence and timetable for completion of these degrees, and includes information about policies and expectations, student support, committees, proposals, and exams. The Biochemistry program, like all other graduate programs at UNH, is part of the UNH Graduate School.Additional details, links, and resources for graduate students are available at the UNH Graduate School website (<https://gradschool.unh.edu/>) and on the webpage for orientation (<https://gradschool.unh.edu/admissions/financial/graduate-assistant-orientation>)

Comments, corrections, and suggestions for additions and updates are welcome at any time and should be addressed to the Biochemistry Graduate Coordinator.

# 2. Program Overview

This chapter offers a quick summary of program structure and requirements. Later sections include more details.

More information about the programs can be found on the Molecular, Cellular and Biomedical Sciences graduate degree program websites and in the graduate catalog:

M.S.:<https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/ms/biochemistry>

Ph.D.:

<https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/biochemistry>

Graduate Catalog:

<https://catalog.unh.edu/graduate/>

## Program goals and emphasis:

The Graduate Program in Biochemistry offers courses of study and research programs leading to M.S., Ph.D., and accelerated 5-year B.S./M.S. degrees. The M.S. programs are structured to prepare students for advanced studies leading to a Ph.D. or other professional degrees, as well as careers in the pharmaceutical industry, research or teaching. Ph.D. degrees are awarded by the program for significant and original research contributions to fundamental and applied knowledge in biochemistry, or broadly biochemistry-related disciplines. The objective of these programs is to provide students interdisciplinary training in contemporary research. The course of study is rigorous, taking into account the student's goals in research, career objectives, and undergraduate preparation.

Graduate students enrolled in the program have access to a wide array of opportunities across diverse fields. These include, but are not limited to, biochemistry and molecular biology, structural biology, molecular immunology, neuroscience, cancer biology, chemical biology, molecular genetics, genomics, and epigenetics. The program emphasizes flexibility, allowing students – with the support of their advisors and guidance committees – to select training experiences tailored to their career aspirations.

Dissertation research is conducted in the laboratories of graduate faculty members in the College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Science (CEPS) at UNH. In some instances, degree research may be conducted at facilities in the biotech or pharmaceutical industry. Interdisciplinary collaboration is encouraged and opportunities for co-mentorship by two advisors at UNH and/or industry are offered. Despite this flexibility, the program ensures that all graduates meet the set of core learning objectives enumerated below.

**Learning objectives**

At the completion of their studies, all MCBS graduates will be able to:

* Critically apply theory, methodology, and knowledge to address fundamental questions in their primary area of study.
* Pursue research of significance in the discipline or an interdisciplinary or creative project. Students plan and conduct this research or implement this project under the guidance of an advisor while developing the intellectual independence that typifies professional scholarship.
* Demonstrate proficiency in oral and written communication sufficient to prepare grant proposals, give scientific presentations, and publish research articles in their field.
* Follow the principles of ethics in their field and in academia.
* Demonstrate, through service, the value of their discipline to the academy and community at large.
* Demonstrate a mastery of skills and knowledge at a level required for college and university undergraduate teaching in their discipline as evidenced by assessment of student learning.
* Interact productively with people from diverse backgrounds as both leaders/mentors and team members with integrity and professionalism.

Graduates of the Biochemistry program will additionally be able to:

* Demonstrate extensive knowledge and understanding of fundamental biochemistry principles and their area of specialization.
* Critically apply theories and methodologies to address fundamental questions in biochemistry or related disciplines through research activities.
* Design and conduct biochemical experiments in their area of specialization, analyze and interpret research data, and draw critical conclusions.
* Effectively communicate biochemical concepts and experimental results in writing and orally, both in scientific technical language as well as at an appropriate level tailored for the general audience.

## Admissions Requirements:

Qualified students are admitted following review of their application by the Molecular, Cellular and Biomedical sciences (MCBS) admissions committee and the MCBS Department Chair. Students entering the graduate programs in biochemistry are generally expected to have completed basic courses in:

* Chemistry (general chemistry - 2 semesters, organic and/or physical chemistry - 2 semesters)
* Biology (general biology, biochemistry, genetics, and cell biology)
* Introductory physics (2 semesters)
* Mathematics (statistics and calculus).

Though letters of recommendation from sources that are outside of academia can be useful, two of the recommendation letters should be obtained from professors familiar with the student’s preparedness for the rigors of graduate studies and research. Prior research experience in the field is highly valued. To assess undergraduate preparation in biochemistry, a diagnostic exam will be administered during the graduate orientation week.

UNH undergraduate students wishing to be admitted to *the accelerated 5-year B.S./M.S. program* must have a cumulative grade point average of 3.2 upon entering their senior year and apply in the spring semester of their junior year. Up to 12 credits earned in courses numbered 700-799 (700/800 co-listed courses taken in the senior year) may be counted as graduate credits. For UNH students accepted into this program, obtaining a grade of B or better in CHEM 651 or CHEM 547 is required, and an average grade of B or better in BCHM 751 and BCHM 752 will exempt the student from taking the biochemistry exam.

## Degrees and options:

M.S. Biochemistry, including the 5-year BS/MS program

Ph.D. Biochemistry

**Appendix 1**: M.S. degree timeline and checklist

**Appendix 2**: Ph.D. degree timeline and checklist

**Appendix 3:** Program Faculty

## Summary of academic requirements

### Master of Science (M.S.) degree

**Degree Requirements:**  The M.S. degree is a research degree and is conferred on a student who has:

1. **Completed a minimum of 30 graduate credits,** including:
   1. Principles of Biochemistry (BCHM 851 and BCHM 852, 8 cr) **OR** pass the ACS Biochemistry diagnostic exam.
   2. Graduate Seminar (MCBS 997, 1 cr) each semester and present once each year.
   3. Introduction to Research in the Life Sciences (MCBS 901, 2 cr).
   4. Master’s Thesis (MCBS 899, 6-10 cr).
2. **Prepared and presented a project proposal** in their second semester of study and met with their committee at least once each year while enrolled in the program.
3. **Conducted original research** in any area of biochemistry or related fields and have written and publicly defended an acceptable thesis.

**Diagnostic Exam:** One ACS examination in Biochemistry (optional) is administered to incoming graduate students during the first week of orientation (the week before fall classes begin). The exam consists of multiple-choice questions designed to test a broad knowledge of the subject area. The purpose of this exam is to determine biochemistry courses to be taken by students. The table below summarizes scores needed to exempt students from certain courses and courses of action if a passing score is not achieved. This may be achieved by either passing the diagnostic exam, or by achieving a B or better in BCHM 851 and BCHM 852. Passing scores for the diagnostic exam are shown below. Students should consult with the graduate coordinator or their thesis advisor to plan a course of action since this requirement must be satisfied to remain in the graduate program.

**ACS Biochemistry Diagnostic Examination for M.S. Students**

|  |  |
| --- | --- |
| **Score Percentile** | **Result/Course of Action** |
| <60 | Take BCHM 851/852 and earn an average grade of B or better. |
| >60 and < 80 | Take BCHM 851 and earn a grade of B or better. |
| >80 | Pass (BCHM 751/BCHM 752 requirement waived). |

See **Appendix 1** for M.S. degree timeline and checklist.

**Doctor of Philosophy (Ph.D.) degree**

**Degree Requirements:**  The Ph.D. is a research degree awarded to qualified candidates who have:

1. **Completed appropriate coursework** as defined in consultation with their advisor and guidance committee. Typical coursework includes:
   1. Principles of Biochemistry (BCHM 851 and BCHM 852, 8 cr) **OR** pass the ACS Biochemistry diagnostic exam.
   2. Graduate Seminar (MCBS 997, 1 cr). Taken each semester, up to 8 credits total, with presentation once per year.
   3. Introduction to Research in the Life Sciences (MCBS 901, 2 cr).
   4. Doctoral Research(MCBS 999, 0 cr). Taken for a minimum of two semesters after advancing to candidacy.
   5. One additional course, chosen from the courses in the handbook listing, as recommended by the student’s advisor and/or committee.
   6. Additional coursework,
   7. Total completed coursework should exceed the M.S. degree requirements.
2. **Prepared and presented a research plan** to their guidance committee no later than their third semester.
3. **Passed the qualifying examination** (see Appendix 5).
4. **Completed original research in biochemistry.**
5. **Written an acceptable dissertation** detailing their original research.
6. **Passed an oral defense** of their dissertation.
7. **Submitted at least one scientific publication for peer review** (highly recommended).

**Diagnostic Exam:** One ACS examination in Biochemistry will be administered to incoming graduate students during the orientation week (the week before fall classes begin). The exam consists of multiple-choice questions designed to test a broad knowledge of the subject area. The purpose of the exam is to determine courses to be taken by each student. The table below summarizes scores needed to exempt students from certain courses, and options available to the student if a passing score is not achieved. This may be achieved by either passing the diagnostic exam, or by achieving a B+ or better in BCHM 851 and BCHM 852. Passing scores for the exam are shown below. Students should consult with the graduate coordinator or their thesis advisor to plan a remedial course of action since this requirement must be satisfied to remain in the graduate program.

**ACS Biochemistry Diagnostic Examination for Ph.D. Students**

|  |  |
| --- | --- |
| **Score Percentile** | **Result/Course of Action** |
| <70 | Take BCHM 851/852 and earn an average grade of B+ or better. |
| >70 and <90 | Take BCHM 851 and earn a grade of B+ or better. |
| >90 | Pass (BCHM 851/BCHM 852 requirement waived). |

**Minimum Time Period:** A minimum of three academic years of graduate study is required. The student must be registered each semester that University facilities are used.

**Term of Study:**

1) Students entering with a B.A. or B.S. degree must advance to Ph.D. candidacy within five years of entering the Biochemistry Graduate Program. All requirements for the Ph.D. must be completed within eight years of entering the Biochemistry Graduate Program.

2) Graduate students who have completed an M.S. degree before entering the Biochemistry Graduate Program must advance to candidacy within four years and complete all degree requirements within seven years.

3) Students who do not meet the above requirements....

See **Appendix 2** for Ph.D. degree timeline and checklist.

## Choice and role of faculty advisor and guidance committee

**Orientation**: During orientation week (the week before fall classes begin), all entering graduate students will participate in a week-long orientation. This orientation will include instruction for teaching assistantships, Graduate School orientation, program orientation, and essential training including but not limited to laboratory and radiation safety training. During orientation week and the first week of classes, students may meet with biochemistry program faculty to discuss research interests and identify possible research projects and advisor(s).

**Rotations (Optional) and Selection of Faculty Advisor(s)**: Students may directly join a lab to conduct research or have the option to participate in three non-overlapping six-week or two eight-week research rotations during the first semester. Students who are interested in only two rotations should do two 8-week rotations, whereas students who are interested in three should do three six-week rotations. These rotations should be completed prior to the beginning of the second semester of study. At the end of the research rotation period, students must meet with the faculty member in whose laboratory they wish to conduct their doctoral research. Typically, every incoming graduate student is sponsored by one, or sometimes jointly by two, advisor(s). Final selection of a research laboratory and thesis/dissertation project requires mutual consent of both the faculty advisor(s) and graduate student. Students are encouraged to discuss expectations and financial support or funding with the faculty mentor as part of the selection process. Faculty advisors have the responsibility for securing summer stipends and other financial supports, such as research assistantships (RA), for their graduate students. The program coordinator oversees the process of selecting a research laboratory and advisor. The final choice of thesis research projects is made in consultation with the selected faculty member and recommended to the program coordinator and MCBS administrative staff.

**Changing Advisor:** A change of advisor does occasionally occur when a student discovers that his/her interests lie in an area best served by some other faculty member. The aim of the program is to provide each student with the best guidance available, and occasional changes of advisor are a part of this process. The graduate program coordinator or, in the event the student is mentored by the program coordinator, the departmental program facilitator can oversee this process of change in advisor. If there is a change in advisor or committee membership after the M.S. Thesis Committee or Ph.D. Guidance Committee has been established, then the student should submit a new committee nomination form to the program coordinator for submission to the Graduate School. [<https://gradschool.unh.edu/academics/forms-policies>].

**Guidance Committee**: During the second semester, and after selecting an advisor, a Guidance Committee will be chosen in conjunction with the advisor. This committee consists of five faculty members: the advisor (as chairperson), two other members of the biochemistry faculty, and up to two faculty members from outside departments. The committee will meet soon to determine the student’s curriculum and thesis project. Courses required by the Guidance Committee must be taken for credit and completed with a passing grade (>B-). Courses recommended by the committee may be audited or taken for credit, but in either case the student is expected to be familiar with the subject matter of these courses. The Guidance Committee will meet each year thereafter to review the student’s academic standing and research progress. The Guidance Committee Form needs to be completed and submitted to the Graduate School by the end of the first year.

**Doctoral Dissertation Committee**: The Doctoral Dissertation Committee is composed of the faculty advisor (as chairperson), two other faculty members in the Biochemistry Department, and up to two faculty member from other departments or programs. The committee is appointed by the Graduate Dean after the student is advanced to candidacy. Normally this consists of the same members as the guidance committee, although outside committee members (from other institutions) with special expertise may be substituted or added. The Doctoral Committee evaluates the dissertation and administers the final examination (dissertation defense). The Doctoral Dissertation Committee will meet annually to assess the progress toward completion of the Ph.D. requirements.

## Program faculty

A full list of program faculty with links to their e-mails can be located at our program page under “faculty directory”: <https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/biochemistry>

See **Appendix 3** for list of Biochemistry Graduate Program Faculty

## Related research programs and facilities

At times students choose to change graduate programs due to selecting an advisor who is not a program faculty or if their interests develop in a direction that is better served by the unique training features of a different program. Students should meet with the program coordinator of the other program of study to discuss changing programs within the department. The other thesis/dissertation based graduate programs administered by the MCBS department include:

### Graduate program in Genetics

Accelerated M.S., M.S., and Ph.D. see: <https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/ms/genetics>; <https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/genetics>

### Graduate program in Microbiology

M.S. and Ph.D. see: https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/ms/microbiology; <https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/microbiology>

### Graduate program in Molecular Evolutionary and Systems Biology

Ph.D. see: <https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/molecular-evolutionary-systems-biology>

### Hubbard Center for Genome Studies

Many resources are available through the HCGS to assist students with their research. <https://hcgs.unh.edu/>

### University Instrumentation Center

Equipment to support student research is managed through this center, where training and use is available for students. See: <https://www.unh.edu/research/analytical-instruments>

### Center for Integrated Biomedical and Bioengineering Research

Additional research equipment, training opportunities, and resources are available through this center: <https://www.unh.edu/research/cibbr>

# 3. Graduate Degree Requirements and Timeline

## Overview

The accelerated 5-year B.S./M.S. degree in biochemistry typically takes 5 years to complete. The standard thesis-based M.S. degree in biochemistry should normally be completed in 2-3 years.

The University requires that all graduate work for any master's degree must be completed within six years from the date of enrollment in the program.

See **Appendix 1** for M.S. degree timeline.

Completion of a Ph.D is dependent on completion and defense of a dissertation and as such there is no pre-determined time or time served for degree completion. The Ph.D. degree should normally be completed within 6 years (as few as 3 years for students entering with a master’s degree). All graduate work for the Ph.D. must be completed within eight years of enrollment, or within seven years if the student entered with a master's degree in the same field. Per university policy, the student must be advanced to candidacy within five years after enrollment or within four years if the student entered with a master's in the same field; however, these are outside limits: advancement to candidacy should usually occur within one year of when the student has completed their coursework, an ideally as early as following their 4th semester (5th if rotating in the first semester) and no later than their 8th semester.

See **Appendix 2** for Ph.D. degree timeline.

## 

## Coursework

### General credit requirements of the Graduate School

Graduate students are normally required to maintain continuous enrollment each Fall and Spring semester by registering for courses, research (MCBS 899, GRAD 900, or MCBS 999), or continuing enrollment (GRAD 800) (see below for distinctions). Students who don’t register for the Fall and Spring semesters will have their degree status discontinued.

The M.S. degree requires completion of a minimum of 30 credits, 6-10 of which are for thesis research (MCBS 899). Given students may join the PhD program from different levels (some with a master’s degree etc), there is no minimal credit requirement for the Ph.D., though students must complete the degree requirements as outlined in the previous section.

Students holding assistantship appointments are considered full time and must register for a minimum of 6 credits, Master's Continuing Research (GRAD 900), or Doctoral Research (MCBS 999) each semester.

Students on assistantships (TA or RA) pay reduced mandatory fees <https://www.unh.edu/business-services/tuition-fees/graduate-tuition-fees>. Tuition is commonly covered by a tuition waiver for students on assistantships; however, a portion of the mandatory fees remain the responsibility of the student. Students enrolled for more than 16 credits pay additional tuition based on the number of additional credits. Detailed information on fees, financial support and policies can be found here: <https://catalog.unh.edu/graduate/general-information/fees-financial-support/>

Doctoral students who have advanced to candidacy may petition each semester to waive fees if they meet the specified conditions. <https://www.unh.edu/business-services/sites/default/files/media/2023-06/mandatory-fee-petition-form.pdf>

The level of the courses taken to meet registration requirements is not specified. However, **taking non-graduate classes does not move one towards degree completion**, so taking undergraduate (UG) classes is not a common practice. A grad student cannot petition to take a 500-level course for credit.

**Graduate courses** **are numbered 800- or 900-level**. Course descriptions can be found in the online [Graduate Course Catalog](http://www.unh.edu/grad-catalog/choosecatalog.cfm) (<http://www.unh.edu/grad-catalog/choosecatalog.cfm>). If there is a graded option, graduate courses may not be taken Credit/Fail.

**Graduate credit for 700-level courses**: These are advanced undergraduate courses. Students may earn up to 12 graduate credits in 700-level courses that are outside of their department’s offerings. A petition for exception to academic policy from the forms page of the graduate school (<https://gradschool.unh.edu/academics/forms-policies>) must be completed and approved by the student's advisor, graduate program coordinator, and the dean of the Graduate School prior to registration in order to receive graduate credit. Such courses must be taken for a letter grade and are subject to the Graduate School’s failing grade policy. Petitions must include what additional requirements or expectations will be required of the student to make the course a graduate level experience. Graduate credit will not be given for any courses (700-level or simultaneous 700/800 level) that have freshmen or sophomores enrolled.

**Undergraduate courses below 700-level:** While taking non-graduate classes is generally discouraged, in some cases, graduate students may need background or training that can best be obtained by taking an upper-level undergraduate class, if no equivalent course is offered at the graduate level. Undergraduate level courses taken by graduate students are billed at the graduate rate, must be taken for a letter grade, and are subject to the Graduate School’s failing grade policy. Courses taken below the 700-level cannot count as graduate credit.

**Audits**: Graduate students may audit courses with the approval of their advisor and the instructor though the graduate school encourages students to enroll in all courses they attend. Credits for an audited course in which a graduate student is formally enrolled may be counted toward enrollment requirements for appointments and assistantships. (Note that tuition for audited courses is the same as for credit courses.)

**Graduate credit from another institution**: Students can request to transfer up to 8 credits of graduate credit from another school, *provided the credits were not counted toward another degree*, and the grade was at least a B. The transfer request form is available at <https://gradschool.unh.edu/academics/forms-policies>.

Where to find enrollment policy, course and registration information:

• Graduate School academic policies: <https://catalog.unh.edu/graduate/general-information/registration/>

• UNH [Course Search Form](http://courses.unh.edu/): <https://courses.unh.edu>

• Graduate course descriptions: <https://catalog.unh.edu/graduate/course-descriptions/>

• Information about registration and deadlines: <https://gradschool.unh.edu/academics/graduate-school-academic-calendar>

Enrollment requirements for appointments and assistantships:

Students must enroll for at least 6 credits in order to hold an appointment (assistantship, fellowship, or graduate part-time lecturer position) during an academic-year semester. Students who have a stipend, an hourly appointment, or a summer appointment must still be enrolled, but there is no minimum credit requirement (unless specified by the appointment). Students registered for Continuing Enrollment (GRAD 800) are not eligible to hold an appointment <https://catalog.unh.edu/graduate/general-information/registration/>. For details, please see the Graduate School website. Additional information is provided in the Graduate School’s Graduate Assistant Handbook with a link located on this page: <https://gradschool.unh.edu/admissions/financial/graduate-assistant-orientation>

Designations for research and continuing enrollment credits:

**• MCBS 899 (Masters Thesis)**: Master’s students enroll in a total of 6-10 credits during one or more academic semesters (course may be repeated up to 10 credit maximum).

**• MCBS 999 (Doctoral Research)**: Doctoral students must register for MCBS999 each semester during the academic year for at least two semesters. While 0 credits, this confers full-time status and makes students eligible for financial aid and the Student Health Benefit Plan. Students who are enrolled only in MCBS999 and meet other conditions may petition to waive fees as described above and by submitting this form: <https://www.unh.edu/business-services/sites/default/files/media/2023-06/mandatory-fee-petition-form.pdf>.

**• GRAD 900 (Master’s Continuing Research)**: Master's students who have completed all course requirements, have previously registered for the maximum 10 thesis research credits (MCBS899), and are in residence completing their master's program, must register for GRAD 900. While 0 credits, this confers full-time status and makes students eligible for financial aid and the Student Health Benefit Plan. Students registered for GRAD 900 may not take any “for-credit” course at the same time.

**• GRAD 800 (Continuing Enrollment):** Continuing graduate students who are not enrolled for course credits, thesis credits, Doctoral Research (999), or Master's Continuing Research (GRAD 900), and are *not in residence*, must register for GRAD 800 each semester of the academic year in order to maintain their active status. GRAD 800 is a 0 credit registration, and students registered for this are not eligible for any form of financial aid or the Student Health Benefit plan, nor can they hold an appointment (RA or TA). (New graduate students may not enroll in this course.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Master’s Student with coursework and research | Doctoral Research | Master’s Student research only (Completed all Thesis Credits) | Any Graduate Student Continuing Enrollment (Not Assistantship or benefits eligible) |
| MCBS 899 | X |  |  |  |
| MCBS 999 |  | X |  |  |
| GRAD 900 |  |  | X |  |
| GRAD 800 |  |  |  | X |

Leave of absence and readmission to complete degree:

If a student chooses to leave the university before successfully defending their thesis, but intends to complete their degree, they have two options to pursue. The ideal option is to submit a request for a leave of absence for financial/personal or medical reasons. They may pause their studies for 1 year and would then apply to be readmitted (form located on the graduate school forms page under “Academics”). If a student fails to submit a leave of absence intend to complete the writing and defense of their thesis/dissertation but intends to do so. Students can submit a request to be readmitted, by application and approval of the department. Students will be responsible for paying tuition and fees for past semesters before their degree is granted. A petition for waiving fees can reduce this financial burden to cover only the tuition cost of GRAD 900 or Doctoral Research GRAD 999, by submitting a “mandatory fee petition form”( <https://www.unh.edu/business-services/sites/default/files/media/2023-06/mandatory-fee-petition-form.pdf>).

### Required courses, competencies, and electives for Biochemistry degrees

All graduate students in Biochemistry are required to complete Principles of Biochemistry I/II (BHCM 851/852, total 8 credits), Graduate Seminar (1 credit each semester, up to 8 credits), and Introduction to Research (2 credits). For students who have sufficient background in Biochemistry (as demonstrated by passing the ACS diagnostic exam in biochemistry) or have taken and excelled in equivalent courses (BMCB 751/752), they may take other related courses, with the approval of their committee. The course may not be independent study but could be an arranged MCBS 895 course with equivalent workload (3+ hours formal instruction per week) or other graduate level courses.

M.S. students must complete a minimum of 30 graduate credits. Ph.D. students have no minimal credit requirements but are expected to complete courses that exceed that of an M.S. student. M.S. and Ph.D. students must submit a degree plan (see Appendix 4) that includes the courses they intend to take, as approved by their guidance committee no later than their second semester of study. Any changes to the degree plan must be approved by the committee and submitted to the program coordinator. The Degree Plan form for M.S. and Ph.D. students can be found in Appendix 4.

See **Appendix 4** for Degree Plan Form

**Biochemistry Graduate Courses:**

BCHM 802 - Endocrinology, 4 cr

BCHM 825 - Cell Phenotyping and Tissue Engineering Laboratory, 4 cr

BCHM 850 - Physical Biochemistry, 3 cr

BCHM 851 - Principles of Biochemistry I, 4 cr (required)

BCHM 852 - Principles of Biochemistry II, 4 cr (required)

BCHM 853 - Cell Culture, 5 cr

BCHM 854 - Molecular Biology Research Methods, 5 cr

BCHM 855 - Protein Biochemistry Laboratory, 5 cr

BCHM 860 - Pharmacology, 4 cr

BCHM 863 - Biochemistry of Cancer, 4 cr

BCHM 894 - Protein Structure and Function, 4 cr

**Other Courses or training:**

MCBS 901 – Introduction to Research, 2 cr (required)

MCBS 997 – Seminar, 1 cr each semester (required)

RCR Training: Responsible Conduct of Research and Scholarly Activity, required for all graduate students

**Additional appropriate courses for consideration**:

Programming:

MCBS 913 - Applied Bioinformatics, 3 cr

GEN 812 - Programming for Bioinformatics, 5 cr

MATH 859 - Introduction to the R software, 1 cr

Design and analysis:

NR 909- Analysis of Ecological Communities and Complex Data, 4 cr

BIOL 811- Experimental Design & Analysis, 4cr

MATH 835- Statistical Methods for Research, 3 cr

ANFS 933- Design, Analysis and Interpretation of Experiments, 4 cr

Writing and communication:

BIOL 902 Writing and Publishing in Science, 2 cr

BIOL 950 Scientific Communication, 2 cr

Elective courses, including but not limited to:

BIOL 805: Molecular and Cellular Neurobiology, 4 cr

CHEM 840: Chemical Biology, 3 cr

GEN 804: Genetics of Prokaryotic Microbes (with lab), 5 cr.

GEN 813: Microbial Ecology and Evolution, 4 cr

GEN 817: Molecular Microbiology (with lab), 5 cr

MCBS 895: Special Topics, 1-4 cr

MCBS 995: Special Topics, 1-4 cr

MCBS 910: Cell Signaling Networks Across the Kingdoms, 3 cr

MICR 805: Immunology, 3 cr

MICR 806: Virology, 3 cr

MICR 808: Virology Lab, 2 cr

MICR 815: Immunology Lab, 2 cr

MICR 835: Molecular and Cellular Parasitology, 4 cr

Professional training:

NR 905- Grant Writing

GRAD 891 National Science Foundation Research Fellowship Preparation

## Masters Thesis, Doctoral Guidance, and Doctoral Dissertation Committees

### Roles and membership

An individual must be a member of the UNH Graduate Faculty to serve as a primary advisor (rules for membership are specified in the Graduate School Bylaws, available on the forms and polices page at the graduate school in the same location of the many other forms and policies at the following link: <https://gradschool.unh.edu/academics/forms-policies>

Only members of the biochemistry graduate program faculty are eligible to serve as a primary or co-advisor for a graduate student in the program. Individuals who are not members of the program faculty can serve on M.S. and Ph.D. committees as long as they are graduate faculty. If a student wishes to have someone serve on their committee who is not currently a graduate faculty, they can nominate the committee member. See the graduate school forms site, under the drop down menu of Faculty/Staff for the form for “Graduate Faculty Nomination Form.” <https://gradschool.unh.edu/academics/forms-policies>

In addition to regular members of the Graduate Faculty, the following may serve on graduate committees with the recommendation and approval of the graduate program faculty and the Graduate Dean provided they are nominated as graduate faculty and hold a degree equivalent to that being sought (see above):

Tenure and tenure-track faculty from departments that do not offer graduate degrees

Research faculty

Clinical faculty

Extension faculty

Faculty emeriti

Lecturers

Adjunct faculty

Affiliate faculty

Individuals with no formal appointment at UNH

### Timing and purpose of committee meetings

M.S. Guidance Committee. A guidance committee should be established during the first semester of enrollment, or as soon after selecting a lab as possible in the second semester. This committee consists of at least three graduate faculty, two of which must be members of the Biochemistry graduate program. The form to designate the composition of the guidance committee is available on the Graduate School website. The student should meet with their committee each year but may also meet with individual committee members more frequently to gain guidance. Progress towards the degree will be monitored by the advisor, the student’s committee, and the Graduate School, and should include a yearly written evaluation to document that the student has made sufficient progress in their studies. Committee nomination forms are located on the forms site at the graduate school webpage under “Forms” and within the drop-down menu of “Academics” <https://gradschool.unh.edu/academics/forms-policies>.

General agenda for Master’s Thesis Committee meetings:

• Spring of 1st year: assess progress, review thesis/research proposal, plan summer research, discuss any further coursework that may be needed; discuss possible funding applications, meetings/presentations, and publication plans. Complete degree plan form (Appendix 4) and annual review (Appendix 5) and submit to GPC.

• (Early) spring of 2nd year: review progress, discuss timing of thesis writing & degree completion; plan/schedule thesis defense (seminar presentation and oral exam by committee); if a need for additional support is anticipated, advisor presents a written request to the Chair.

Ph.D. Guidance Committee. The guidance committee is established as soon as possible after the student has chosen an advisor and not later than the end of the first year in the program. The guidance committee assists the student in outlining his or her program of study and in preparing for the qualifying examination and administers the qualifying exam. The guidance committee normally consists of five members, three of which shall be Biochemistry graduate faculty and two of which can be from disciplines outside of the program. Students are encouraged to identify committee members that can support their research and development by broadening the expertise of their committee through committee members outside of UNH program faculty. The form to designate the composition of the guidance committee is available on the Graduate School website. The graduate students should meet with the guidance committee annually. <https://gradschool.unh.edu/academics/forms-policies>.

Doctoral Dissertation Committee. The committee is appointed by the Graduate Dean after the student is advanced to candidacy. Normally this consists of the same members as the guidance committee, although outside committee members (from other institutions) with special expertise may be substituted or added. The qualifications of these faculty must be submitted to and approved by the Graduate School as described above. The doctoral dissertation committee supervises the dissertation and administers the final examination. The forms to designate advancement to candidacy and nominate the composition of the doctoral dissertation committee or change its composition are available on the Graduate School website under the drop-down of “Academics”: <https://gradschool.unh.edu/academics/forms-policies>.

General agenda for Ph.D. committee meetings:

• Spring of 1st year/Fall of 2nd year: assess progress, review research plan, plan summer research, discuss any further coursework that may be needed; discuss possible funding applications, meetings/presentations, and publication plans. Complete degree plan form (Appendix 4) and annual review (Appendix 6) and submit to GPC.

In subsequent meetings:

• Continue to review progress, discuss funding applications, meetings/presentations, publications, etc.

• Plan Ph.D. qualifying exam and advancement to candidacy; discuss composition of the Doctoral Dissertation Committee (appointed when the student advances to candidacy).

• Discuss timing of dissertation writing and degree completion; plan/schedule thesis defense (seminar presentation and oral exam by committee).

• If a need for additional support is anticipated, advisor presents a written request to the Chair.

### Annual progress review

As part of their annual committee meeting, the student should complete a self-reflection of their progress and plan for the upcoming year of study using the provided form (See Appendix 6). The goal of this process is to ensure the student is progressing as they should, to plan for the upcoming year by setting goals and documenting benchmarks, and to identify and remedy any obstacles that have arisen in their successful completion of their degree. The form should be submitted to their advisor ahead of their annual committee meeting, which should take place each Spring or no later than the first two weeks of the Fall semester. The student is responsible for both completing the front page and self-reflection portion of the form, for providing this to their advisor, and for scheduling the committee meeting. The committee will discuss the student’s plans and progress at their meeting and the advisor will summarize the committee’s recommendations in writing within one week of the committee meeting. A copy of this assessment will be provided to all committee members for correction/review. A quorum that is acceptable for this review meeting is 2 members for M.S. or 4 members for Ph.D. students. The student should arrange to meet with any committee member who is not available for the committee meeting to update them on their academic progress and plans. Failing to fulfill the requirement of a committee meeting within one semester (by the third semester) for an annual meeting and review may lead to termination of assistantship support by the department, and potentially a hold on the student’s registration by the graduate school. A review must be completed and submitted to the graduate program coordinator every year of study.

See **Appendix 6** for Annual Review Form.

## Research Plan

M.S. Students Research Plan. A student should define their research project, preferably in writing, by the end of the second semester. A summary of the student’s research objectives should be presented during the student’s first seminar and will be reviewed at a meeting of the Guidance Committee. Students are encouraged to prepare a proposal seminar for presentation in MCBS 997 in their second semester, invite their committee to attend their seminar, and convene a meeting with their guidance committee following this seminar. Alternatively, students may prepare a brief proposal presentation for their committee meeting.

Ph.D Dissertation Research Plan. No later than second full semester of dissertation research (typically the third semester, if the student rotated during the first semester), students will prepare a 3-5 page, single-spaced (limit excluding the reference section), succinct description of their dissertation project *with citations* (a literature review in the area of their research). The project synopsis includes:

1) Background: a summary of the problem and general knowledge in the field

2) Hypotheses, Questions, and Significance: articulates specific hypotheses, questions to be addressed, and importance of research

3) Approach: a general description of experimental approaches. This should include caveats, possible problems, alternative approaches, and resources of expertise they have identified to help

4) Timeline: a general timeline for the planned experiments in the upcoming ~2 years

5) Communication: potential audiences for the work (meetings, publications)

Students submit this synopsis proposal to the guidance committee which provides input in a committee meeting. This meeting should take place no later than the end of the third semester in the program.

## Seminar presentations and Graduate Research Conference

The MCBS Department offers graduate seminars (MCBS 997) each semester. All graduate students are required to attend seminar each semester and to present at least once each year. Students must fulfill the expectation of attendance and participation outlined in the syllabus *even when not enrolled*. At times, departmental seminars in COLSA or by permission outside the college can be substituted for some of these sessions. Conferences do NOT count as participation in seminar though students are encouraged to attend and present at scientific meetings regularly. Students who are not in residence can petition to waive this requirement or may be approved to attend a limited number of seminars remotely (e.g. via zoom) or in the location where they are in residence (e.g. if at another academic institution conducting research).

Students should confirm with their advisor that the date of their scheduled seminar does not present a conflict with their schedule, and they should personally invite their committee members to attend every seminar. It is beneficial to use the seminar presentation to convene an annual meeting with the committee to discuss progress.

Participation in the UNH Graduate Research Conference is strongly recommended. Students should also seek opportunities to present their work at professional meetings, as well as to public/stakeholder/non-academic audiences.

## Completing the degree

As a graduate student, you are responsible for knowing what you need to do to get your degree: your advisor and committee should offer guidance, but the primary responsibility is yours. Make sure you are thoroughly familiar with:

• the program’s academic requirements (credits, courses, competencies);

• necessary paperwork (committee nomination, Ph.D. candidacy, etc.);

• thesis/dissertation format and filing requirements;

• format and scheduling procedures for qualifying exams and thesis/dissertation defense; and

• all relevant deadlines.

If you have questions about what you need to do, or how to do it, consult your advisor, the Program Coordinator, and/or the UNH Graduate School. If there is information you think needs to be added or clarified in this handbook, please contact the Program Coordinator.

The student is responsible for transmitting necessary paperwork to the Graduate School, and fulfilling Graduate School requirements for electronic submission of the thesis, by the appropriate deadline

### M.S.

Credit requirements: At least 30 credits must be earned, including a minimum of eight credits in BCHM 851/852, in courses numbered 800-999. Full-time students *with assistantships* must enroll for a minimum of 6 credits per semester including MCBS 997 Seminar. Eight credits or less constitutes part-time status for students without assistantships. Students on assistantships typically enroll for 6-8 credits per semester. Students should enroll in all courses they attend; however, in order to progress in their research while balancing coursework, 8 credits per semesters is usually sufficient for M.S. students to complete their degrees within two years.

Up to 12 credits may be earned in courses numbered 800 or 900 in a department other than the one in which the degree is earned provided the courses are approved by the Dean of the Graduate School. No more than 12 credits, not including thesis, may be earned off the Durham campus. For details on transfer credit see the current Graduate School Catalog under *“Academic Regulations.”*

Occasionally it may be appropriate for a graduate student to take a 600-level course, especially if undergraduate foundation coursework is lacking or as a pre-requisite before the student takes an 800- or 900-level course in an external discipline. Whether or not a Biochemistry student takes undergraduate-only courses (at the 600 level) would depend on his/her research focus and their guidance committee's recommendation, but these do not count towards degree or credit requirements. Most undergraduate 700-level courses may be taken for graduate credit at the 800-level by arrangement with the instructor.

Biochemistry Curriculum. A candidate for the M.S. degree must take a minimum of two approved Biochemistry courses (See the previous list) during graduate studies and these should provide both breadth and depth. For students who have extensive training in Biochemistry as undergraduates and therefore have limited options for courses with substantially new content, the student may request to substitute one non-Biochemistry course that is deemed suitable by their committee; a written request must be reviewed and approved by the Biochemistry graduate program coordinator. Self-study is not suitable for this training requirement but the advisor can provide the student with a MCBS 895 course (3 hours of instructional activities per week) to fulfil this requirement. Students are required to enroll in graduate seminar each semester and must attend, typically a minimum of ten presentations each semester and present once per year in order to receive a passing grade for credit (refer to the course syllabus). Students are required to enroll in MCBS 901 their first Fall semester.

Degree Completion. All graduate work for the M.S. degree must be completed within six years of initial matriculation (see the Graduate School Catalog under *“Academic Regulations”*). The usual period of time for completion of the M.S. degree is two to three years.

Thesis. A written thesis is required. A minimum of 6 and up to 10 thesis credits (MCBS 899) may be applied toward a M.S. degree, with the final number of credits determined in consultation with the advisor. A final grade of credit (Cr.) is given for the completed thesis. The graduate school typically offers workshops and writing retreats for students to prepare their thesis, and the book “writing in the biological sciences” by Angelika Hofmann is an excellent resource for writing the thesis. Before writing your thesis, make sure to consult the guidance committee on their preferred format, and what sections they expect the thesis to include.

At least two bound copies of the thesis are required, and the financial responsibility, of Biochemistry students – one bound copy for the Program/Department, and one for the advisor.

Examinations. The final examination for the M.S. degree includes a public research seminar and defense of the thesis with the Guidance Committee. The candidate is permitted only two opportunities to take the final examination. The time of the examination will be at the convenience of the advisor and the student’s committee. The date of the exam should be early enough to permit revisions of the thesis prior to submission deadlines. The amount of time the committee requires for review of the thesis prior to the exam should be clearly defined through consultation with each committee member, but in general, committee members should be given at least two weeks to review the completed and edited thesis prior to the exam.

### Change of degree status, M.S. to Ph.D.

If a student wishes to change to the Ph.D. program, they must first hold a committee meeting and have the recommendation and approval of their committee before applying. They will be required to submit an application for change in program with a personal statement that addresses the reasoning behind the change in degree, and with letters of recommendation: the forms for this are on the Graduate School website under the drop-down of admissions: <https://gradschool.unh.edu/academics/forms-policies>. If the student is requesting additional departmental assistantship support beyond that which was defined in their offer letter (usually 2 years of teaching assistantship support) they must apply for change in program during the normal admissions cycles, currently on or before December 15th for a start date of Fall, and on or Before August 15th for a start date of Spring semester. If the student is not seeking assistantship support, their application should still be submitted by these deadlines, but the committee may recommend an expedited change in degree. Note that students who enroll for master’s thesis credits are ineligible for change in program to Ph.D. without completing all M.S. degree requirements including a thesis and its defense, and submission of a manuscript.

### Ph.D.

Biochemistry Curriculum. Ph.D. students are expected to complete BCHM 851/852 courses unless they pass the ACS diagnostic exam in biochemistry, and are broadly exposed to related fields **EXCEEDING** that required by M.S. students. Full-time doctoral students are expected to carry a full course load of 6-8 credits each semester for their first two years or until they advance to candidacy. Students are required to attend graduate seminar (MCBS 997) each semester and to present a graduate seminar each year regardless of whether or not they are enrolled. Ph.D. students are required to enroll in MCBS 997 each semester until they advance to candidacy.

Credits and Grades.

1) Transfer credit. Resident graduate work done at other universities may be counted toward the degree upon approval of the guidance committee and the Dean of the Graduate School, but one full academic year must be in residence at the University of New Hampshire.

2) Graduate Credit. Graduate credit may be earned in courses numbered from 800 through 900.

3) Credit Load. For students supported by an assistantship, the Graduate School recommends a minimum of 6 and a maximum of 12 credits per semester. Students are expected to register for 6-8 credits each semester, including seminar. Students registered for 9 or more credits are not eligible for discounted fees, but students should enroll in all classes they attend regardless of this financial consideration. However, in order to progress in their research while balancing coursework, 8 credits per semester is usually sufficient for Ph.D. students to complete their coursework within the first two years of study. Major coursework should be completed during the first two years in preparation for advancement to candidacy.

4) Registration for Doctoral Research. A doctoral student must register for Doctoral Research (MCBS 999) for a **MINIMUM** of two semesters. When a doctoral candidate is in residence (using University facilities while doing dissertation research), he or she must continue to register for MCBS 999 Doctoral Research.

Qualifying Examination. Within one year of completing their last formal class required by their committee, Ph.D. students are expected to complete the qualifying examination, no later than their 7th semester of study.

See **Appendix 5** for Format and Procedure of

Qualifying Examination

Advancement to Candidacy. The student is advanced to candidacy after their qualifying examination has been successfully passed, course work and other requirements have been fulfilled, and the proposed subject of the dissertation declared.

Manuscript. To successfully complete a Ph.D. degree, the student is strongly encouraged to submit manuscripts (research article or review) to peer-reviewed scientific journals for publication. While publishing first-author papers is highly recommended, having publication does not guarantee successful completion of the degree.

**Ph.D. dissertation defense**

The Dissertation and Final Defense. The dissertation is the critical documentation of scholarly work of the candidate and should include a comprehensive literature review as well as several chapters representing research contributions. Completion of the dissertation and scheduling of the defense should be early enough to permit revisions prior to graduate school submission deadlines. The graduate school typically offers workshops and writing retreats for students, and the book “writing in the biological sciences” by Angelika Hofmann is an excellent resource for writing the dissertations. Before writing your dissertation, make sure to consult the doctoral committee on their preferred format, and what sections they expect the dissertation to include. Each member of the doctoral committee must receive a copy of the **COMPLETED** dissertation **TWO WEEKS BEFORE THE ORAL PRESENTATION AND DEFENSE OF THE DISSERTATION.** See the graduate school calendar for specific deadlines for final defense date and submission of dissertation. Two bound copies are the responsibility of the student, one is for the advisor, and one is for the program/department. A checklist for submission of the dissertation is located on the Graduate School website under the drop-down of academics: <https://gradschool.unh.edu/academics/forms-policies>.

### Graduation

The Graduate School website provides detailed information on graduation procedures, including deadlines, filing “intent to graduate” notification, submitting theses/dissertations to the Graduate School, and Commencement: <https://gradschool.unh.edu/student-resources/graduation-commencement>

### Program awards

**The Christina Carr Research Excellence Fellowship and Travel Awards**

The Christina Carr Research Excellence Fellowship and Travel Awards recognize outstanding contributions and potential in research within the PhD Program in Biochemistry at UNH. These awards are made possible through the generous donation of Dr. Christina Carr, an alum of our program, whose commitment to advancing biochemistry research is unwavering. Dr. Carr’s contributions inspire and empower the next generation of researchers. These awards are designed to support and encourage PhD students who demonstrate excellence in their research, contribute to scientific inquiry, and promote scientific communications.

The Research Excellence Fellowship acknowledges exceptional research accomplishments and is awarded annually to one outstanding PhD student in the Biochemistry Program. The Travel Awards provide financial assistance for presenting research at recognized national or international conferences and support 5 to 8 trips per year, depending on fund availability.

See **Appendix 7** for Application and Review Procedure of the Christina Carr Research Excellent Fellowship and Travel Awards

### UNH Graduate School awards

Students are encouraged to apply for the UNH Graduate School’s Summer TA Fellowship (STAF), Dissertation Year Fellowship (DYF), and other awards, as appropriate. Detailed information about the Graduate School’s various awards is available at <https://gradschool.unh.edu/research/fellowships-awards>.

# 4. Assistantship Appointments and Financial Support

## General information

Students are usually admitted to MCBS graduate program with financial support. The terms of this assistantship support will be outlined in their letter of offer of admission. Assistantships may be either for teaching or research.

**Teaching Assistantships (TA)**, administered through the MCBS department, are a condition of most student admissions. Students with teaching assistantships receive a stipend in connection with teaching responsibilities that are separate from their research work.

**Research assistantships (RA)** are provided by research grants and contracts to individual faculty. Students with research assistantships receive a stipend in connection with their research work and typically do not have teaching responsibilities. RAs are not guaranteed and may be discontinued if the funding that supports theRA position is not continued or renewed. In cases where a student’s RA support is no longer available, that student will typically switch to a TA appointment.

Departmental supports for TAs are typically as follows:

Duration: Master’s student – typically awarded for 2 years; Doctoral student – typically awarded for 3 years. Continued support past the third year is available through individual research project grants and RA appointments.

Change in program from M.S. to Ph.D.: A student supported by a teaching assistantship during an M.S. program will be provided one additional year of support if they pursue a doctoral degree within a program administered by MCBS provided they change program without defending their M.S. degree.

Summer stipend support: As part of their eligibility to mentor students, MCBS faculty have committed to ensuring their students in good standing have summer stipend support. MCBS faculty are obligated to cover summer stipends consistent with the level of support provided by a Summer TA Fellowship (STAF, see graduate school for current level) using their research funds unless the student has secured their own funding. If a student is in good standing but their advisor can not provide grant support, the student should contact the MCBS Administrative Assistant to enquire about summer TA positions or other support mechanisms. Such students should also consult with the Graduate Program Coordinator and/or Graduate Program Facilitator.

## UNH Graduate School Graduate Assistant handbook

The GA Handbook provides detailed information on registration requirements, policies, workload, and other critical topics related to assistantships. The handbook can be accessed through a link on the graduate school orientation page under graduate assistant documents: <https://gradschool.unh.edu/admissions/financial/graduate-assistant-orientation>

## Program policies and expectations

Workload: Teaching Assistantships (TA) require up to 20 hours of teaching responsibilities every week of each semester and could include one or more classes. TA assignments vary from teaching 1-3 laboratory sections, laboratory recitations, or lecture administrative assistance and grading. Research assistantships (RA) are provided by research grants and contracts to individual faculty. Research assistantships are not always guaranteed and may be terminated if the funding is not continued or renewed. Obligations under research assistantships should be discussed with the individual providing the support but should not include more than 20 hours per week effort outside the area of the thesis/dissertation research.

Restriction on outside employment: Students receiving either a teaching or research assistantship have a full-time commitment to university activities. Half of their time is to be spent on the assistantship activities (which may or may not be directly related to their research) and the remaining time is to be spent on the students’ classes and research leading to their degree. *Outside employment is not permitted for full-time students on assistantships and has a negative impact on progress towards the students’ degree and may jeopardize renewal of an Assistantship.*

Vacation time: The amount and specific dates of vacation time are an individual matter between the student and the faculty advisor. Normally students are expected to use those times free from class working in the laboratory to further their degree work. Students can expect to take vacation or personal time that is in keeping with normal employment, which is typically a little as 2 weeks earned time or as much as 3 weeks.

## Support for graduate student travel and research expenses

**The MCBS department** has limited funds to support students to attend a scientific conference where they present their research. Additional funds may be available for attending workshops or other enrichments.

**The Graduate School offers travel grants** for graduate students who are presenting papers and posters at professional meetings and conferences, or attending professional development programs that will enhance their research. <https://gradschool.unh.edu/admissions/tuition-financial-aid/travel-grant-request-form>

**The Christina Carr Travel Awards** provide financial support for biochemistry PhD students who, as the first author, present their research in recognizable scientific conferences.

**The Christina Carr Research Excellent Fellowship** acknowledges exceptional research accomplishments and is awarded annually to one outstanding PhD student in the Biochemistry Program.

See “Useful links” below for more possibilities.

## UNH Graduate School fellowships

Summer TA Fellowships (STAF). These fellowships are for graduate students who held teaching assistantships during the previous academic year. They are for summer study and are competitive, awarding on average <50%. Applications, including a research proposal, a self-evaluation of teaching, a CV and abstract are due each January. The graduate school typically hosts workshop sessions on the applications in advance to help applicants write competitive proposals. Successful applicants who have received this award have carefully followed the guidelines and written proposals that allow the evaluators to easily identify all scored components of the application as described in the dropdown instructions under “Summer TA fellowship terms and awarding criteria”. A well-written proposal should communicate the value of the work to a broader audience and the specific value of the project to the dissertation/thesis work, avoid jargon, include a timeline of activities, and utilize graphics (e.g. a graphical abstract, and visuals to explain methodological approaches). Letters of recommendation must be requested no later than the end of the first week in January, but the program coordinator may request notice at an earlier date. The applicant is responsible for making sure the letter writers have all the necessary information and documentation for completing their recommendations. The student must provide a copy of the research proposal and self-evaluation, as well as an additional questionnaire, to the Biochemistry program coordinator at the time of submission of the application. The coordinator also requires the student provide a brief worksheet summary of information. <https://gradschool.unh.edu/research/fellowships-awards>

Dissertation Year Fellowships (DYF). These competitive fellowships are made available by the Graduate School and are for the **FINAL** year of doctoral study. Applications are typically due in mid-January. The student must request letters of recommendation from faculty no later than early-December. <https://gradschool.unh.edu/research/fellowships-awards>

## Other fellowships and financial aid

Federally Funded Fellowships. These are primarily for U.S. citizens. The stipend varies and includes a tuition waiver. The National Institutes of Health (NIH) and the National Science Foundation (NSF) are two federal agencies which sponsor these fellowships. Qualified students are urged to apply. Contact the Graduate School or Research Development and Communication Office for information.

Other Fellowships. In addition to teaching assistantships, students are strongly encouraged to seek additional fellowships to support their graduate training. These are commonly available at the University, State and Federal levels. In addition, there are many competitive funding opportunities available from discipline specific private foundations.

Loans. Information on financial aid can be found at <http://financialaid.unh.edu/>. Apply by the priority deadline (<http://www.fafsa.ed.gov/>). For UNH loans, an eligible student is defined as a student who is registered for a degree. There must be financial need and the loan, if awarded, must be used for educational purposes only.

## Useful links

• UNH Graduate School information on Graduate Appointments (scroll down): <https://catalog.unh.edu/graduate/general-information/fees-financial-support/>

• UNH Graduate School information on fees and financial support (scroll down): <https://catalog.unh.edu/graduate/general-information/fees-financial-support/>

• UNH Financial Aid Office: <https://www.unh.edu/financialaid>

• UNH Graduate School financial aid info <https://gradschool.unh.edu/admissions/financial>

• UNH Office of National Fellowships: <https://www.unh.edu/fellowships-office/>

• UNH Graduate School Information on Dissertation Year Fellowships, Summer Teaching Assistant Fellowships and Travel Grants: <https://gradschool.unh.edu/research/fellowships-awards>

• UNH Research Office links for grad students: <https://www.unh.edu/research/resources-graduate-students-seeking-funding>

• UNH Research Office general advice about finding funding: <https://www.unh.edu/research/find-funding-0>

• National Science Foundation Graduate Research Fellowship Program [www.nsf.gov/funding/pgm\_summ.jsp?pims\_id=6201&org=NSF](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=NSF) Very prestigious and very competitive; watch for announcements from the Graduate School about information sessions and proposal preparation support. Also track down the current UNH graduate students who’ve won them!

# 5. Information for New Students

## Laboratory Rotations (optional)

Incoming students may participate in two eight-week or three six-week rotations in biochemistry faculty laboratories during their first semester of study. The purpose of the rotation is to gain experience in the research conducted in that laboratory and help the student choose a thesis advisor. The rotation may involve a discrete short-term project, exposure to various projects in the lab, experience with techniques in the lab, or assisting with ongoing projects. The nature of the rotation and expectations should be discussed with the rotation advisor. Students are expected to complete rotations and choose a laboratory by the end of their first semester in the graduate program.

Conducting a rotation in a laboratory is not a guarantee that the faculty member will agree to serve as the student’s thesis advisor. The rotation also allows the prospective advisor to evaluate the student’s potential. Final selection of a research laboratory and thesis project requires mutual consent of both the faculty advisor and graduate student. Students are encouraged to discuss expectations and funding with the faculty mentor as part of the selection process. The Biochemistry graduate coordinator oversees the process of selecting a research laboratory and advisor. If an incoming student has not yet identified/been accepted by mentor, they should solicit advice from potential advisors or the program coordinator as to what courses are most appropriate.

## Initial advisor meeting

Students should meet with their advisor as soon as possible to discuss research plans, classes to take, training needs, and teaching or assistantship obligations. It’s a good idea to make initial plans in writing, and review and update them as part of the annual (spring) progress review. It is critical for everyone to be clear – and on the same page – about expectations, and agree on how to manage communication, meetings, etc.

The student and advisor should review the student’s educational background, and assess what coursework may be necessary to (1) correct any deficiencies; (2) provide a broad foundation in the student’s research area; (3) focus in on topics central to the intended research; and (4) learn specific tools and skills needed for the thesis project and for their future goals.

This meeting is also a good time to begin discussing possible committee members. Although the committee need not be formally established until the end of the first semester, contacting and involving additional faculty (besides the advisor) as early as possible is helpful for both academic and research planning.

## Starting research

Incoming students are expected to begin some research during their first semester. This may be the initial stage of the thesis project, a pilot or exploratory study, or other work that will help the student learn important techniques or skills that will be useful later on. Note that students must have completed the required training and documentation before working with vertebrate animals or in other regulated areas.

## Registering for classes

Registration information and deadlines can be found on the Graduate School academic calendar: <https://gradschool.unh.edu/academics/graduate-school-academic-calendar>

Incoming graduate students in the biochemistry program typically enroll in BCHM 851, MCBS 997 and MCBS 901, and potentially another course identified that fill gaps in foundational training.

## Other things to take care of as early as possible.

• Required training.

Mandatory Graduate Assistant Orientation: <https://gradschool.unh.edu/admissions/financial/graduate-assistant-orientation>

Responsible Conduct of Research training – online modules and on-campus sessions. Required for all new Ph.Ds. See <https://www.unh.edu/research/research/complianceehs/responsible-conduct-research-scholarly-activity/rcr-training-unh>

• Discuss with your advisor whether you need to apply for your own, or be added to their, approval for use of vertebrate animals or human subjects. If you’re not sure, check with Dr. Julie Simpson (julie.simpson@unh.edu), Director of Research Integrity Services ([www.unh.edu/research/support-units/research-integrity-services](http://www.unh.edu/research/support-units/research-integrity-services)).

• Determine whether you need to obtain collecting or other permits for fieldwork.

• Locate support/resources you will need to be effective in your research and teaching, e.g.

Student Accessibility Services: <http://www.unh.edu/studentaccessibility>

Resources for international students: <https://www.unh.edu/global/international-students-scholars>

• Health insurance

All full-time degree students are required to have health insurance as a condition of enrollment. Thus, graduate students who are registered for 9 or more credits (6 if on an assistantship) during a semester are required to have health insurance, and will be automatically enrolled and billed in the student health benefit plan (SHBP) unless they waive it due to holding their own health insurance.

Students must waive the SHBP annually; the waiver form is available at <http://www.unh.edu/health-services/shbp>. This site also includes information on the plan’s cost, coverage, and other important details.

All grad students supported on a TA or PA/RA are fully insured even if they only have a half TA: the cost is covered under the tuition waiver, which is covered by the department or the PI.

• Sign up for Campus Alerts for automatic notification of weather delays/cancellations, power outages, campus safety alerts, and other emergencies. <http://www.unh.edu/upd/campus-alerts>

The UNH Graduate School provides helpful information and links for new students at <https://gradschool.unh.edu/student-resources>.

## Orientation & welcoming events

There are several orientations and welcomes (mostly in early Fall) for new graduate students; some of these are mandatory, depending on student status. See links at <https://gradschool.unh.edu/student-resources>

## Recommended Resources:

Excellent guidance for successfully doing bench research can be found in a book by Katy Barker, “At the Bench: A Laboratory Navigator” ISBN 978-0879695231. Available spiral bound, kindle or hardback.

# 6. Responsible Conduct of Research and Other UNH Policies

Graduate students, like all other researchers, must comply with all rules and policies that are relevant to their work. It’s your responsibility to know about, and follow, the rules that may apply to your project. Your resource for navigating these requirements are the Research Integrity services on campus: <https://www.unh.edu/research/research/mission-organization/research-integrity-services>

## Requirements and training

**Ethical Research Training**: The Graduate Council has mandated that all incoming Ph.D. students complete Responsible Conduct of Research training approved by the Graduate School by the end of their first semester. For more information, visit the RCR website, <https://www.unh.edu/research/research/complianceehs/responsible-conduct-research-scholarly-activity>.

If you work with **vertebrate animals** in any aspect of your research or teaching, you need prior approval from the Institutional Animal Care and Use Committee, as well as the required training (online module and in-person session). This includes field and observation studies as well as lab work and research with domesticated animals. If your research supervisor or the person for whom you are TAing already has approval for the activity, you just need to do the training and submit the medical questionnaire – then you can be added to their approval. Details and forms are available at <https://www.unh.edu/research/research/complianceehs/animal-care-use/institutional-animal-care-use-committee-iacuc>

If your research will involve **human subjects** in any way (including surveys), you should check if you will need approval from the Institutional Review Board. See <https://www.unh.edu/research/research/complianceehs/human-subjects/institutional-review-board-protection-human-subjects-research-irb>

## Student rights and key policies

UNH’s statement on Student Rights, Rules, and Responsibilities applies to graduate students as well as to undergraduates. It can be found here: <https://catalog.unh.edu/srrr/>

The following UNH policies can impact student roles (in some cases, particularly as graduate assistants):

**Academic Honesty.** Honesty is a core value at UNH. The <https://catalog.unh.edu/srrr/university-policies-regulations/academic-integrity/>.

**Consensual Amorous Relationship Policy.** The policy is designed to prevent conflicts of interest that can occur when two members of the UNH community whose institutional roles place them in an uneven power dynamic engage in a consensual amorous relationship. They are described first at this link: <https://www.unh.edu/provost/academic-administration/faculty-resource-guide/section-5-policies-procedures>. And details are listed at this link: <https://www.usnh.edu/policy/usy/v-personnel-policies/d-employee-relations#usyvd36>

**Discriminatory Harassment Policy.** It is the policy of the University of New Hampshire to uphold the constitutional rights of all members of the university community and to abide by all United States and New Hampshire State laws applicable to discrimination and harassment. In accordance with those laws, all members of the UNH community will be responsible for maintaining a university environment that is free of intimidation and harassment. Therefore, no member of UNH may engage in harassing behavior within the jurisdiction of the university that unjustly interferes with any individual’s required tasks, career opportunities, learning, or participation in university life. As employees of the university and as graduate students, graduate students are protected under the policies UNH has put in place to discourage, to investigate, and to address instances of harassment.

Graduate assistants should also take responsibility for conducting themselves professionally and should be aware of the ways that power dynamics shape their various roles at UNH. If charges against a graduate assistant are brought forward by a fellow graduate or an undergraduate student, the person making the charge may choose between pursuing charges. The university equity and affirmative action statement is located here: <https://www.unh.edu/diversity-inclusion/civil-rights-equity-office/about/unh-affirmative-action-equity-statement>. Resources including how to report incidences are located here: <https://www.unh.edu/diversity-inclusion/civil-rights-equity-office>

**Family Educational Rights and Privacy Act of 1974 (FERPA)**: Graduate assistants should be aware of confidentiality issues as they pertain to student records, both their own and those of others, such as students enrolled in a TA-taught course. Social security numbers and grades are protected by federal law under the Family Educational Rights and Privacy Act of 1974, often referred to as the “Buckley Amendment.” The University System Policy relative to the Buckley Amendment is found here: <https://www.unh.edu/registrar/student-records/ferpa>.

**University Specific Sexual Assault Reporting Requirements**: These requirements are available through UNH’s Sexual Harassment & Rape Prevention Program: <https://www.unh.edu/diversity-inclusion/sexual-misconduct/reporting-requirements>. Help for individuals who have experienced harassment can be located here: <https://www.unh.edu/sharpp/>

**Title IX Prohibiting Sex-based Discrimination in Education**: There are specific rights pertaining to sexual violence and harassment that are covered by federal law. Title IX is a landmark federal civil right that prohibits sex-based discrimination in education. Part of the law addresses sexual harassment, gender-based discrimination, and sexual violence. Sexual violence includes attempted or completed rape or [sexual assault](http://www.unh.edu/sharpp/sexual-assault), as well as [sexual harassment](http://www.unh.edu/sharpp/sexual-harassment), [stalking](http://www.unh.edu/sharpp/stalking), [relationship abuse](http://www.unh.edu/sharpp/relationship-abuse), voyeurism, exhibitionism, and verbal or physical sexuality-based threats or abuse. Inquiries regarding discrimination should be directed to: <https://www.unh.edu/diversity-inclusion/civil-rights-equity-office>

**Health Insurance Requirement**: All full-time degree students are required to have health insurance as a condition of enrollment. Thus, graduate students who are registered for any of the following during a semester are required to have health insurance, and will be automatically enrolled and billed in the student health benefit plan (SHBP) unless they waive it because they already have their own health insurance:

* + 9 or more credits (6 credits if on assistantship)
  + GRAD 900 (master’s continuing research)
  + MCBS 999 (doctoral research)

Students must waive the SHBP annually; the waiver form is available at <https://www.unh.edu/health/student-health-insurance>. This site also includes information on the plan’s cost, coverage, and other important details.

# 7. Resources for Graduate Students

## Whom to ask

When you need information, ask someone: your advisor, committee members, the graduate coordinator, other faculty, office and technical support staff. Senior graduate students know the local ropes; post-docs can often provide excellent professional and career guidance.

If you are experiencing advisor-related issues, you can discuss the matter with the graduate coordinator and/or with the department chair; you can also meet with the Dean of the Graduate School.

**Program contacts and Information**

• Administrative staff: Matthew James is the administrative assistant responsible for graduate student academic issues

• Graduate Coordinator: Xuanmao Chen (currently)

• Graduate Facilitator: David Platchetzki (currently)

• Program Faculty – see **Appendix 3**.

**Graduate Program Coordinator (GPC)**

The Graduate Program Coordinator oversees all aspects of the graduate program and participates in admissions.

The GPC is responsible for communicating guidelines for all graduate students in each degree (M.S. and Ph.D.) and brings forth suggestions for changes in policies pertaining to the program. The GPC welcomes input and suggestions from graduate students as well as faculty and staff.

Graduate students should feel free to approach the GPC, or the Graduate Program Facilitator for advice at any time, although ordinarily the student's faculty advisor and committee serve as the primary contact.

**UNH Graduate School**

The Graduate School office can help with an array of questions related to graduate student experience, including petitions for exceptions to academic policy, changes to student records, requests for leaves of absence, etc. Students can also use the Graduate School as a resource if they are unable to get answers or responses within their program, or if issues arise that they wish to discuss with someone outside of their program.

## Graduate School resources

The Graduate School offers a variety of resources for students, including the following professional development opportunities. Current information, including workshop dates, is available on the <https://gradschool.unh.edu/>.

**Preparing Future Faculty & Preparing Future Professionals Programs**

Several development programs are available through the graduate school at this page: <https://gradschool.unh.edu/student-resources/career-professional-community-development-resources/professional-development>. Programs that are regularly offered are the preparing future faculty and preparing future professionals. The Preparing future faculty (PFF) is a national initiative that transforms the way doctoral programs prepare aspiring faculty members for their careers. It emphasizes an education that is informed by the kinds of responsibilities faculty members actually have at a variety of institutions. The Preparing future professionals program (PFP) is designed to provide all graduate students with professional development workshops, speakers and other events focused on professional skills and preparation for successful job searches and career advancement (workshops on preparing CV’s, interviewing for positions, etc.).

**UNH Summer Program on College Teaching**

The program features both on-campus courses and electronic, asynchronous courses. Course offerings are available by searching for the website (currently not available).

**Thesis and Dissertation Workshops**

The Graduate School holds monthly information sessions on the rules and processes for formatting and submitting final theses and dissertations. Dates are posted on the Graduate School homepage <https://gradschool.unh.edu/>.

**Graduate Research Conference**

Each April, over 200 UNH graduate students from all academic disciplines present at the GRC, or during their program’s research symposia. The presentations showcase the results of graduate research at UNH's Durham and Manchester campuses.

**Graduate Student Senate**

Graduate students are encouraged to participate in the Graduate Student Senate (GSS), the official voice of UNH's graduate student body. The GSS advocates for graduate students and meets bi-weekly throughout the academic year. It also fosters community and social engagement among graduate students via an array of activities. Information and the calendar of GSS events is available at <https://www.unh.edu/student-governance/graduate-student-senate>.

## UNH and local resources

Graduate students generally have access to most of the campus resources available for undergraduates. There are a few differences, however: for instance, you don’t get free hockey tickets, but you can reserve a private study carrel in the library (see link below). This reflects a fundamental difference between life in college and life in graduate school!

* **Academic Deadlines:** See the academic calendar <https://gradschool.unh.edu/academics/graduate-school-academic-calendar> for registration deadlines, add/drop dates, and refund periods.
* **Business Services Office**: For paying tuition bills, refunds, picking up loan and scholarship payments, and related items. <https://www.unh.edu/business-services/>
* **Campus Maps**: <https://www.unh.edu/facilities/resources/campus-maps>
* **Campus Safety:** The UNH Police Department (<https://www.unh.edu/upd/>) offers resources and classes related to campus safety:
  + How to sign up for campus alerts (**students are highly encouraged to do so**): <http://www.unh.edu/upd/campus-alerts>
  + Protocol for a reported school shooting: <http://www.unh.edu/upd/active-shooter>
  + Behavioral intervention team to help identify and assess those in crisis: <https://www.unh.edu/dean-of-students/getting-help/behavioral-intervention-team>
  + The University System of New Hampshire’s policy on firearms on campus is available at: <http://www.usnh.edu/olpm/UNH/III.Admin/J.htm>
  + As per the Clery act an annual report of campus crime statistics and security can be found here: <https://www.unh.edu/upd/about/department-statistics>
* **Commuter services:** There are spaces set aside for commuters, including graduate students at the MUB: <https://www.unh.edu/offcampus/campus-engagement/commuter-spaces>
* **Counseling Center**: The Counseling Center is the primary mental health facility on campus. It offers a variety of services that are designed to enhance students' ability to fully benefit from the University environment and academic experience. This includes providing counseling and therapy for students who may be experiencing situational or ongoing psychological difficulties, providing programming to meet the developmental needs of the student population, and encouraging a University atmosphere conducive to personal and intellectual growth as well as psychological well-being. <https://www.unh.edu/pacs/>

* **Dining and ID Office**: For obtaining UNH ID cards and signing up for meal plans. <https://www.unh.edu/dining/dining-id-office>
* **Student Accessibility Services**: The Student Accessibility Services Office (SAS) serves students with documented disabilities. Their website explains available services and accommodations: <https://www.unh.edu/studentaccessibility>
* **Durham Directory**: Includes information on Durham-based stores and restaurants. <https://www.ci.durham.nh.us/directory?field_business_categories_value=320>
* **Financial Aid Office:** Provides assistance on applying for financial aid.

<http://financialaid.unh.edu/>

* **Health Services**: Offers medical care and wellness education services to UNH students, faculty and staff. <http://www.unh.edu/health-services/>
* **Housing on and off-campus**: UNH Housing provides two on-campus options for graduate students: Babcock Hall, a traditional residence hall for graduate or non-traditional students, and Forest Park, our family housing complex on campus for those who are arriving with families (married, civil unions, or those with dependent children). For more information, visit <https://www.unh.edu/housing/>. There is a third party app that assists students with locating off campus housing: <https://www.rentcollegepads.com/off-campus-housing/new-hampshire/search>. Other online resources for the seacoast:
  + UNH Classified Ads: [www.unh.edu/ads](http://www.unh.edu/ads)
  + Foster’s Daily Democrat: [www.fosters.com](http://www.fosters.com)
  + Seacoast On-Line: [www.seacoastonline.com](http://www.seacoastonline.com)
* **Information Technology**: Provides IT services for faculty, staff and students. <https://www.unh.edu/it/>. They staff a walk-in service on the 3rd floor of Dimond Library.
* **Library**: <https://www.library.unh.edu/>

If you can’t find what you need on the website, go to Dimond Library and ask: at the circulation desk or the reference desk on the main (3rd) floor.

* **Local events** (e.g., Portsmouth, Dover) events, dining, housing options and other items. <http://www.seacoastnh.com/index.php>
* **Memorial Union Building**: Provides a vast array of organizations, facilities and events of interest to graduate students. <https://www.unh.edu/mub/leadership>
* **Recreation**: For information on fitness center options, club and intramural sports, etc. <http://campusrec.unh.edu/>
* **Study Carrels:** Quiet study carrels are available for graduate students in Room 441 of Dimond Library. The room has a variety of seating options, WiFi, electrical outlets, and lockers. <https://library.unh.edu/services/spaces-study-work/graduate-study-carrels>

* **Transportation**: For information on parking, and transportation to campus locations and surrounding towns: <https://www.unh.edu/transportation/>
* **Train and bus**: Daily Amtrak service runs from the Durham campus to Boston and Portland (and points en route) <http://www.amtrakdowneaster.com/station/durham-unh> . The C&J Bus Company goes to Logan Airport and South Station in Boston, as well as directly to New York City <http://www.ridecj.com> .
* **UNH Mobile** is available on iOS and Android platforms. The app features individual modules which include a course catalog, directory, dining menus, maps, game schedules, and more. <https://apps.apple.com/us/app/unh-mobile/id619902827>
* **Veterans Services:** Veterans Services is committed to providing support and assistance for veterans, active duty military, Guard/Reserves, and their dependents. The office is staffed by professional student affairs staff and student veterans; we encourage you to contact us or visit (301 Thompson Hall) for assistance with any student or military-related concern: <http://www.unh.edu/veterans/> .

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# Appendices

## Appendix 1: M.S. degree timeline and checklist

(Appointment typically begins one week prior to Fall classes).

The Orientation Week before Fall Semester Classes Begin

1. Attend graduate orientation with graduate coordinator.

2. Meet with potential faculty advisors by appointment and discuss their expectations for a rotation and for conducting research in their lab. Discuss workload expectations, coursework, and summer/financial support policies.

3. Select appropriate coursework with guidance from the Biochemistry graduate coordinator (or thesis advisor, if advisor has been chosen).

4. Complete on-line training modules (radiation awareness, hazardous waste, laboratory safety, BSL-2, etc.).

5. Meet with instructor of teaching assignment. Meet with laboratory staff if you have been assigned to TA a “wet lab.”

6. Attend MCBS welcome pot luck!

First Semester

1. Register for courses by end of first week of classes in consultation with your thesis advisor or the program coordinator. A minimum of 6 credits is required (and a maximum of 8 credits are recommended). Courses should include BCHM 851 (if not passing the diagnostic exam), MCBS 997, MCBS 901 and maybe one additional course. Also complete certification in responsible conduct of research.

Note: BS/MS students who have taken and passed BMCB 751 and BMCB 752 with B+ do not have to take BCHM 851 and 852 again.

2. Select a guidance committee, submit the nomination form to the Graduate School.

Winter Break and J-term of Year One

1. Complete Summer TA Fellowship (STAF) application if eligible. Write your proposal, obtain input from major advisor, and arrange for letters of recommendation. Notify the biochemistry graduate coordinator that you will be applying for the STAF no later than Jan 7th or earlier if instructed to do so.

Second Semester

1. Register for a minimum of 6 and generally up to 8 credits. Courses should include BCHM 852, MCBS 997 and a third course.

2. Select guidance committee, submit committee form to the graduate school, and schedule a committee meeting by the end of this semester if you did not do so during the first semester.

3. Write a brief thesis project proposal and submit this to the committee prior to the first committee meeting.

4. Give departmental proposal seminar on your project. Personally invite committee members to attend.

5. Complete self-assessment (See Appendix 6) and hold committee meeting/annual review with at least 2 committee members present. Your advisor will submit the review to the Graduate program coordinator for documentation.

6. Submit Degree Plan form to GPC (see Appendix 4)

6. Apply for federal financial aid if needed by the deadline.

Summer

1. Conduct research and attend conference to present your work if possible.

Third Semester

1. Register for courses. These should include MCBS 997, a major course, and/or thesis credits (MCBS 899). Note that, of the 30 credits required for graduation, you may register for up to 10 total MCBS 899 credits and must have a minimum of 6 credits to graduate.

2. Complete online refresher training if necessary (e.g., biohazardous waste).

3. Meet with committee members individually or jointly to discuss progress and gain advice.

Winter/J-term of Second Year

1. Prepare STAF application as in year one, if eligible.

Fourth semester (and additional semesters as needed)

1. Complete coursework, including MCBS 997 and MCBS 899. Ensure you have a minimum of 30 credits to graduate and at least 6 thesis credits. If your degree plan was changed, submit a new plan (See Appendix 4)

2. Write thesis and obtain feedback from advisor.

3. Carefully review graduate school deadlines for thesis submission, arrange thesis defense date and seminar with committee. Provide a complete (not draft) thesis to committee no later than two weeks prior to defense.

4. Revise thesis based on committee feedback, print thesis according to directions from Graduate School, obtain committee signatures on signature page, and submit prior to graduate school deadline.

5. If you do not intend to complete your degree this semester, complete the self-reflection and schedule an annual review this semester (see Appendix 6), or no later than the first 2 weeks of the Fall semester.

Name Advisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Admit semester:\_\_\_\_\_\_

**Biochemistry M.S. DEGREE PROGRAM** Student Checklist

**Coursework and Degree Plan Course Form (Submitted by end of first year of study)**

* + - BCHM 851
    - BCHM 852
    - MCBS 901
    - MCBS 997
    - Additional appropriate courses recommended by committee
  + Final Course Approval Form (signed by all members of the committee when coursework is complete, must turn in with or before candidacy form, within 8 semesters)

**Committees, meetings and annual review:** guidance committee and dissertation committee (can be same):

1. Must include at least 3 members, all graduate school faculty;
2. The chair (advisor) must be biochemistry program faculty;
3. 1 additional members must be biochemistry program faculty;
4. And an off-campus member must hold at least an M.S. degree and be approved by the student's advisor, and the Graduate School Dean.

* Guidance Committee Form (by end of first year)
  + Meet with committee year 1, complete review [ ]
  + Meet with committee year 2, complete review [ ]
  + Meet with committee year 2, complete review or defend [ ]

**Research proposal**

* Presented to committee (2nd semester)
  + - 3-4 pages (excluding references)
    - Contains literature review in introduction (with significance)
    - Hypotheses and questions
    - Approaches including alternatives and limitations
    - Audiences and expected venues for publication/presentation
* Student files *Intent to Graduate Form* with Graduate School, notifies the Program Coordinator of intent
* **Final Thesis Exam and Defense**

1. written M.S. thesis
2. public presentation
3. oral defense (by thesis committee)
   * Advisor notifies the Program Coordinator of completion of **final exam** [ ]

## Appendix 2: Ph.D. degree timeline and checklist

**Timeline for Ph.D. Students**

(Appointment typically begins one week prior to Fall classes).

Orientation Week before Fall Semester Classes Begin

1. Attend graduate orientation with graduate coordinator.

2. Meet with potential faculty advisors by appointment and discuss their expectations for a rotation and for conducting research in their lab. Discuss workload expectations, coursework, and summer/financial support policies.

3. Select appropriate coursework with guidance from the biochemistry graduate coordinator (or thesis advisor, if advisor has been chosen).

4. Complete on-line training modules (radiation awareness, hazardous waste, laboratory safety, BSL-2, etc.).

5. Meet with instructor of teaching assignment. Meet with laboratory staff if you have been assigned to TA a “wet lab.”

6. Attend MCBS welcome pot luck!

First Semester

1. Register for courses by end of first week of classes in consultation with your thesis advisor or the Biochemistry graduate coordinator. A minimum of 6 credits and a maximum of 8 credits, are recommended. Courses should include BCHM 851 (if not passing the diagnostic exam), MCBS 997, MCBS 901.

2. Enroll in “Ethical and Responsible Conduct of Research” training (<https://www.unh.edu/research/research/complianceehs/responsible-conduct-research-scholarly-activity/rcr-training-unh>), complete the on-line modules, and attend the training session.

3. Select a guidance committee (three members must be Biochemistry graduate faculty) and hold a meeting to discuss course work and submit a degree plan (see Appendix 4). Submit committee nomination form to the graduate school.

4. If participating in rotations, select an advisor by the end of the semester and notify the Graduate Program Coordinator of your decision by the end of the semester. If additional rotations are necessary to identify a suitable advisor, discuss this with the GPC.

Winter Break and J-term

1. Complete Summer TA Fellowship (STAF) application if eligible. Write your proposal, obtain input from major advisor, and arrange for letters of recommendation. Notify graduate program coordinator that you will be applying for the STAF no later than Jan 7th.

Second Semester

1. Register for a minimum of 6 credits. Courses should include BCHM 852 and MCBS 997 and a third course, such as BCHM 860 or BCHM 894.

2. Write a project proposal, submit to the guidance committee, and arrange a committee meeting to discuss proposal by the end of this semester. If you rotated during your first semester, you may delay this step until your third semester.

3. Give a departmental proposal seminar on your project. Personally invite committee members to attend.

4. Complete the annual reflection and schedule a committee meeting to complete your annual review.

4. Apply for federal financial aid if needed by the deadline.

Summer:

1. Conduct research.
2. Attend conferences to present work, if appropriate.

Second Year

1. Register for a minimum of 6 credits each semester. These should include MCBS 997 and major courses recommended by committee.

2. Complete any refresher training (e.g., biohazardous waste)

3. Meet with committee for annual review during Spring semester, update degree plan if necessary.

4. Present research seminar and invite guidance committee.

5. Prepare STAF application as in previous year in December-January.

6. Conduct research.

Third Year

1. Complete any required refresher training.

2. Complete major coursework.

3. Prepare for qualifying exam once all coursework is complete and schedule exam. Meet with individual committee members for guidance on their expectations and advice on how to prepare.

6. Select thesis committee members. Submit nomination form and advancement to candidacy form to graduate school.

7. Present research seminar and invite committee.

8. Conduct research.

9. If you advance to candidacy before January and anticipate completing your degree in year 4, apply for a Dissertation Year Fellowship (deadline is mid-January).

10. Consider professional development opportunities (workshops, teaching programs, etc.)

11. Complete your progress reflection and schedule your annual progress review meeting with your committee (See Appendix 6)

Fourth and Subsequent Years

1. Complete any refresher training

2. Complete research and a minimum of 2 semesters of doctoral research (MCBS 999)

3. Meet with your committee and complete annual review at least once per year.

4. Write and submit manuscripts on research.

5. If you advance to candidacy before January and anticipate completing your degree in the next year, apply for a Dissertation Year Fellowship (deadline is mid-January).

6. Arrange thesis defense date and seminar with committee. Carefully review graduate school deadlines for thesis submission and graduation.

7. Consider attending thesis workshops at the Graduate School or enrolling in a writing seminar to assist in the writing of your thesis. Review thesis format requirements prior to writing.

8. Provide a complete (not draft) dissertation to committee no later than 14 days prior to defense date.

9. Make revisions to thesis based on committee feedback, print dissertation according to directions from Graduate School, obtain committee signatures on signature page, and submit prior to graduate school deadline.

Name Advisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Admit semester:\_\_\_\_\_\_

**BIOCHEMSITRY PH.D. DEGREE PROGRAM** Student Checklist

**Coursework and Degree Plan Course Form (Submitted by end of first year of study)**

* + - BCHM 851
    - BCHM 852
    - MCBS 901
    - MCBS 997
    - Additional appropriate courses recommended by committee
  + Final Course Approval Form (signed by all members of the committee when coursework is complete, must turn in with or before candidacy form, within 8 semesters)

**Committees, meetings and annual review:** guidance committee and dissertation committee (can be same):

* + 1. Must include at least 5 members, all holding a doctorate degree;
    2. The chair (advisor) must be biochemistry program faculty;
    3. 2 additional members must be biochemistry program faculty;
    4. And off-campus members must hold a Doctorate degree and be approved by the student's advisor, and the Graduate School.
* Guidance Committee Form (by end of first year)
  + Meet with committee year 1, complete review [ ]
  + Meet with committee year 2, complete review [ ]
  + Meet with committee year 3, complete exam and review [ ]
* Doctoral Committee Form (with candidacy form)
  + Meet with committee year 4 (and additional years as necessary), complete review [ ]

**Research proposal**

* Presented to guidance committee (2nd full semester of study, 3rd semester if rotating)
  + - 3-4 pages (excluding references)
    - Contains literature review in introduction (with significance)
    - Hypotheses and questions
    - Approaches including alternatives and limitations
    - Audiences and expected venues for publication/presentation

**Advancement to candidacy** after successfully completing:

* + **All coursework** required by committee (as documented on Degree Plan)
  + **Qualifying Exam,** Advisor notifying Biochemistry Program Coordinator, by e-mail or letter, of

completion of the **qualifying exam** on [ ]

* + Candidacy Form to Biochemistry Program Coordinator
* Student files *Intent to Graduate Form* with Graduate School, notifies Biochemistry Program Coordinator of intent
* **Final Dissertation Exam and defense**

1. written Ph.D. dissertation
2. public presentation
3. oral defense (by dissertation committee)
4. Submitted manuscript(s) for peer review (recommended)
   * Advisor notifies Biochemistry Program Coordinator of completion of **final exam** [ ]

## Appendix 3: Program faculty list

A complete listing of program faculty can be found on the program page under “faculty directory”

<https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/phd/biochemistry>

**MCBS:**

Xuanmao Chen, MCBS

Jingwei Cheng, MCBS

Feixia Chu, MCBS

Rick Cote, MCBS

Sean Edington, MCBS

Sherine Elsawa, MCBS

David Plachetzki, MCBS

Kostas Sousounis, MCBS

Kelley Thomas, MCBS

Louis Tisa, MCBS

Paul Tsang, MCBS

Krisztina Varga, MCBS

Sarah Walker, MCBS

Cheryl Whistler, MCBS

Don Wojchowski, MCBS

**Chemical Engineering:**

Linqing Li, Chemical Engineering

Harish Vashisth, Chemical Engineering

Kang Wu, Chemical Engineering

**Chemistry:**

Anyin Li, Chemistry

Nate Oldenhuis, Chemistry

## Appendix 4: Degree Plan

**Biochemistry Graduate Student Degree Plan**

Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Directions: Develop a plan of courses with the direction of guidance committee no later than second semester of study. Changes to the degree plan are permitted but require submission of a new plan approved by the guidance committee. Submit this plan to the Graduate Coordinator. See Graduate Student Handbook for a complete list of approved and recommended courses.

Completed or intended courses in biochemistry and related fields.

|  |  |
| --- | --- |
| Course number and Name (Credits) | Semester |
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Committee Approval (M.S. committee has 3 members, Ph.D. has 5 members):

Name: Signature: Date:

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## Appendix 5: Qualifying Examination

**Format and Procedure of the Qualifying Examination**

Students must take and pass the qualifying examination before being “advanced to candidacy”. The format of the qualifying exam is to write and defend a research proposal.

After completion of required coursework in the program and fulfilling other degree requirements, students seek the approval of the advisory committee to proceed to the qualifying exam, which should occur within 3-6 months of approval. Typically, the qualifying exam takes place in the third year - between the 4th to 6th semester of the candidate student’s academic program. The purposes of the qualifying exam are to i) assess the depth and breadth of knowledge in biochemistry, molecular, and cellular biology, and in the student's specific research domain; ii) evaluate the student's capability of critical thinking and to develop a rigorous research proposal, and iii) assess the student's proficiency in scientific writing and communication, and to articulate and defend a research proposal.

The qualifying exam consists of both a written and an oral section, both of which center on a student’s proposed dissertation topic. Alternatively, after consulting with the advisor and the advisory committee and receiving their approval, students may develop a research proposal on a topic that is derived from published research article(s). Students are expected to develop their research proposals under the oversight of their advisor and/or committee members, who should provide students guidance on topic selection and writing, with the aim of enhancing both scientific premise and written communications. It is recommended that the student and advisor meet at least three times to discuss and revise the proposal prior to submission to the committee. The student may submit the proposal to the committee only upon approval by their advisor. The advisor should ensure that the final version of the proposal is a bona fide product of original, creative thinking from the student.

The **written section** of the qualifying exam is a research proposal, typically following the format of NIH NRSA predoctoral F31 fellowship (sample F31 proposal are available for reference (see [<https://www.niaid.nih.gov/grants-contracts/sample-applications>](https://www.niaid.nih.gov/grants-contracts/sample-applications))). Alternatively, for research that is more related to NSF themes or other funding agencies, it may follow the format of graduate research fellowship of NSF or other funding agencies.

Specifically, the written section should include the following:

* **Specific Aims:** a one-page summary that outlines the gap-in-knowledge, the research's main objectives, the main hypotheses, and the potential impact the research could have. This should be structured to include 2-3 specific aims, each with a testable hypothesis.
* **Research Strategy:**
  + **Background, Significance and Premise:** a summary of the existing knowledge in the field, with an emphasis on the importance of the proposed research in advancing our understanding of biological processes while addressing broader socioeconomic needs. This should raise specific questions that will be addressed in the research and provide the scientific foundation and importance of the proposed work.
  + **Innovation:** A concise description of the uniqueness, specifically the technical and/or conceptual novelty of the proposed research.
  + **Approach:** A description of the methods and approaches that are employed, including identification of resources and expertise that the student will engage to tackle the research. This section should also highlight potential challenges and limitations and provide alternative approaches, in case the main hypothesis fails.
  + **Timeline:** A general timeline that outlines the anticipated milestones and deadlines for completing the research. This demonstrates the student’s ability to plan and manage a research project effectively.

The research proposal is submitted to the advisory committee for evaluation at least three weeks before the oral exam. Committee members may approve or reject the written proposal. If a committee member rejects the submitted proposal, they must provide a response to the student, with copy to the advisor and other committee members. The responses should articulate specific shortcomings and actionable steps that the student may take to rectify. The advisor is responsible for convening the committee to collectively assess the quality of the proposal. After the discussion, the committee will provide general comments and additional revision critiques specifying strengths and weaknesses of the proposal, as well as the necessary improvements that must be made by the student before submitting a revised version. Only after a majority of the members of the advisory committee has approved the written proposal, the student moves to the oral defense. Students are encouraged, in consultation with their advisor, to submit their research proposals to NIH to compete for a NRSA F31 predoctoral fellowship.

The **oral section** is contingent upon the student having successfully completed the written section. The specific content of the oral exam is determined, in consultation with the advisory committee, primarily by the content of the written proposal. Students may give a brief update (~10 minutes) on their coursework and research progress at the beginning of the oral examination (~10 minutes). The presentation of the research proposal may last 30-40 minutes, followed by questions from the committee. Questions may arise from general knowledge in biochemistry, molecular, and cellular biology, or specifically associated with the proposed project. Students are expected to defend the significance, premise, rationale, methodologies, and experimental plans outlined in their proposals. They are expected to present a feasible project utilizing available resources at UNH, the advisor’s laboratory, and collaborative supports. The oral exam typically lasts 90-120 minutes.Upon the completion of questions from the committee, the student will be asked to leave the defense room while the committee discusses the oral examination. The committee discussion should last no longer than 15 minutes, and consensus by the committee should be reached after a discussion. Afterwards, the student will be invited back into the room to hear the committee's verdict and their specific feedback on both the oral portion of their exam, and the qualifying exam in general.  
The grading of the qualifying exam includes **Pass, Conditional Pass, or No Pass**. Upon passing the qualifying examination, the student advances to PhD candidacy, officially declaring the intended dissertation topic. For students receiving a Conditional Pass, specific weaknesses identified by the committee are addressed through additional revision or research. Students who receive a No Pass have demonstrated insufficient scientific premise, mastery of lab skills or critical thinking. In this case, they have the option to retake the qualifying exam within 6 months. Students who cannot pass the qualifying exam after 2nd trial are advised to pursue a master’s degree.

## Appendix 6: Annual Progress Review

**Graduate Student Annual Committee Meeting and Progress Review**

The intent of the review process is i) for students to think critically about their own progress and identify actions and resources that would support their success, ii) to ensure advisors constructively work with their graduate students in setting goals, communicate their expectations towards work and progress and work with the student in navigating challenges and identifying needed support/resources, and iii) to engage the guidance/thesis/dissertation committees in regular conversations about the student’s progress. There is no “grade” and the self-, advisor-, and committee-assessments are meant to give specific direction to assist the student in progressing in their degree.

Each student will complete a self-assessment of progress and develop a plan for achieving their goals. They will submit this to their entire committee two weeks prior to their committee meeting. The thesis/dissertation advisor(s) will review the self-assessment and provide written feedback and their own assessment about progress to date and expectations for future progress to the student and committee one week prior to the committee discussion, especially identifying any concerns that the committee may discuss or help to solve.

The format of the meeting should include a brief research presentation and update, where the student, not the advisor, speaks to their research. Ideally the meeting would be scheduled in conjunction with the student’s annual departmental seminar, and the committee would be invited and attend. The committee should then discuss with the student their self-assessment and the advisors assessment to provide perspective and guidance. At the conclusion of the meeting, the student will exit, and the committee will meet briefly to provide feedback in writing as per the below forms. The student should plan to meet with their GPC following their meeting to discuss any issues or concerns. Students could also meet separately with any of their committee members without their advisor if this would help them navigate any emergent issues. Students who expect to graduate over the summer should still have a meeting in the spring.

**Completed by Student:**

Student Name:

Degree/Program: Admit Term:

Advisor and committee members (3 for M.S. student, 5 for Ph.D.)

Committee Chair

Member (Dept)

Member (Dept)

Member (Dept)

Member (Dept)

Others?:

Term last academic course completed:

Written qualifying exam completed:

Oral qualifying exam completed:

Date of this annual review and committee meeting:

Date of previous year (your last) annual review and committee meeting:

**Student Academic Progress and Planning**

1. Coursework

Courses completed (Credits):

Courses planned for coming year:

*Items 2-6 below may be submitted in the form of a Curriculum Vitae (CV)*

2. Have you attended any workshops or received specialized training relevant to your academic work?

3. List scholarly contributions (abstracts, meeting presentations):

4. Have you received any fellowships/funding or submitted applications that were not awarded in the last year:

5. List of Honors, Awards & Recognition

6. Do you have any community engagement relevant to your academic work to share?

7. Describe the goals you and your committee set for the previous year and your progress in meeting these goals. What milestones did you achieve (e.g. submitted a manuscript, completed a set of defined experiments or developed/vetted a protocol)? What goals did you not meet and what are your plans for these unattained goals moving forward?

8. What obstacles have you encountered and what actions have you have taken to overcome these challenges?

11. If you have not completed your qualifying exam, when do you plan to do so?

12. What resources and activities do you believe will help you in preparation for your qualifying exam or thesis defense?

13. What are your academic goals/progress you will strive for in the coming year?

**Student Personal and Professional Development Plans**

1. What are your career goals/considerations?

2. What are your professional development goals for the coming year or semesters ahead? What activities would you like to undertake to develop professional skills (such as writing, speaking, analytic skills, creative abilities, leadership, teaching or other competencies)

**Dissertation/Thesis Committee Chair Annual Review and Direction:**

1. What progress did the student make over the last year, especially with respect to the goals and benchmarks established as priorities in the prior committee meeting. What are the key areas where the student should focus their efforts and make progress in the coming year

Has the student met expectations for progress as outlined in the student program handbook and/or in the last progress report? If not, in what areas have they fallen short in terms of academic achievement. In what ways have they not met expectations for academic achievement? What specifically should the student do to improve?

\_\_\_\_Yes

\_\_\_\_\_Mostly, with some room to improve

\_\_\_\_\_No

**Dissertation/Thesis Committee Annual Review and Direction (Developed by the Committee at the Conclusion of the Meeting, and Provided to the Student):**

Is the student progressing as expected? If not, what changes in course were identified by the committee during the meeting and are recommended or expected?

What primary goals did the committee set with the student for the upcoming year (noting any that are different than identified already by the student and advisors)?

What special resources were identified to support the student’s progress in the coming year?

What specific milestones were identified by the committee for the student to meet in the coming year?

**Appendix 7: Christina Carr Awards**

**The Christina Carr Research Excellence Fellowship and Travel Awards**

**Application and Review Procedure**

**Overview**

**The Christina Carr Research Excellence Fellowship and Travel Awards** recognize outstanding contributions and potential in research within the PhD Program in Biochemistry at UNH. These awards are made possible through the generous donation of Dr. Christina Carr, an alum of our program, whose commitment to advancing biochemistry research is unwavering. Dr. Carr’s contributions inspire and empower the next generation of researchers. These awards are designed to support and encourage PhD students who demonstrate excellence in their research, contribute to scientific inquiry, and promote scientific communications.

The Research Excellence Fellowship acknowledges exceptional research accomplishments and is awarded annually to one outstanding PhD student in the Biochemistry Program. The Travel Awards provide financial assistance for presenting research at recognized national or international conferences and support 5 to 8 trips per year, depending on fund availability.

**Eligibility Criteria**

1. **Enrollment Status**: Applicants must be currently enrolled as PhD students in the Biochemistry program and be in good academic standing.
2. **Research Progress**: Applicants should have made significant progress in their research, demonstrated by publications, conference presentations, or other scholarly activities.
3. **Conference Participation (Travel Awards only)**: To be eligible for the Travel Award, applicants must have been accepted, as the first author, to give a poster or oral presentation at a recognized conference.

**Application Materials**

Applicants must submit the following materials:

1. **Research Statement**: For the Research Excellence Fellowship, submit a two-page statement summarizing the applicant's research achievements, contributions to the field, future research plans, and career aspirations. For the Travel Awards, include a one-page brief description of the conference, the significance of the presentation, and its relevance to the applicant's research.
2. **Curriculum Vitae (CV)**: A current CV that includes educational background, research experience, publications, presentations, teaching performance, distinctions, leaderships, and any other relevant accomplishments.
3. **Letters of Support**: For the Research Excellence Fellowship, 2-3 letters of recommendation from the applicant's primary research advisor or another faculty member familiar with the applicant's research and academic performance. This letter should speak to the applicant's research potential, contributions, and suitability for the award. For the Travel Awards, letters of support are not needed, unless there are a high volume of applications.
4. **Proof of Conference Acceptance (Travel Awards only)**: A copy of the acceptance letter or email from the conference where the applicant, as the first author, will be presenting their research.

**Submission Instructions**

1. **Deadline**: For the Research Excellence Fellowship only, all application materials must be submitted by **November 30**. Late or incomplete applications may not be considered. There is no deadline for the Travel Awards applications. However, awarding may depend on annual fund availability. The annual travel awards funding cycle is from July 1 to June 30.
2. **Submission Method**: Applications should be submitted electronically as a single PDF document to the program coordinator and a MCBS senior administrator. The subject line should read: "Christina Carr Research Excellence Fellowship Application - [Applicant’s Full Name]" or "Christina Carr Travel Award Application - [Applicant’s Full Name]". The PDF file should be named as follows: “LastName\_FirstName\_ChristinaCarrFellowship.pdf” or “LastName\_FirstName\_ChristinaCarrTravelAward.pdf”.

Letters of support can be individually emailed from faculty members directly to the program coordinator and MCBS senior administrative staff.

**Selection Process:**

1. **Review Committee**: Applications for the Research Excellence Fellowship will be reviewed by a committee consisting of three faculty members from the Biochemistry Graduate Program, along with the program coordinator as a non-voting ex officio member. The Travel Award applications will be assessed by the program coordinator and MCBS senior administrative staff.
2. **Evaluation Criteria**:
   * **Research Excellence**: The significance, innovation, progress, and feasibility of the applicant's research.
   * **Scholarly Contributions**: Publications (including peer-review research articles, bioRxiv preprints, and published review articles), presentations, teaching performance, distinctions and other forms of scholarly output.
   * **Recommendation**: The strength of the supporting letters in attesting to the applicant's dedication, research potential and accomplishments.
   * **Prior Awards**: Students who have not previously received an award will be given priority for consideration.
   * **Relevance to the Conference (Travel Awards only)**: The relevance and importance of the conference to the applicant's research field.
3. **Award Notification**: For the Research Excellence Fellowship, applicants will be notified of the committee's decision by December 31. The Travel Awards will be granted based on a first-come first-serve basis, subject to fund availability. Please note: Travel awardees are encouraged to share housing with their lab mates or colleagues during conference trips.

**Award Disbursement**

1. **Research Excellence Fellowship**: The recipient will receive a monetary award of $2,500 to cover awardee’s living expense.
2. **Travel Awards**: Recipients will receive a travel award of up to $1,000 to cover conference registration fees, travel, accommodation, and other related expenses. In certain years, due to limited funding and a high volume of applications, travel awardees may receive less than $1,000. Receipts and proof of attendance must be submitted to receive reimbursement.
3. **Final Approval:** The decision to award the Research Excellent Fellowship and to reimburse travel will require the approval of the MCBS Departmental Chair.

**Contact Information**

For any questions regarding the application procedure, please contact Dr. Xuanmao Chen (current program coordinator) at [Xuanmao.Chen@unh.edu](mailto:Xuanmao.Chen@unh.edu) or Matthew James (current MCBS senior administrative staff) at [Matthew.James@unh.edu](mailto:Matthew.James@unh.edu)