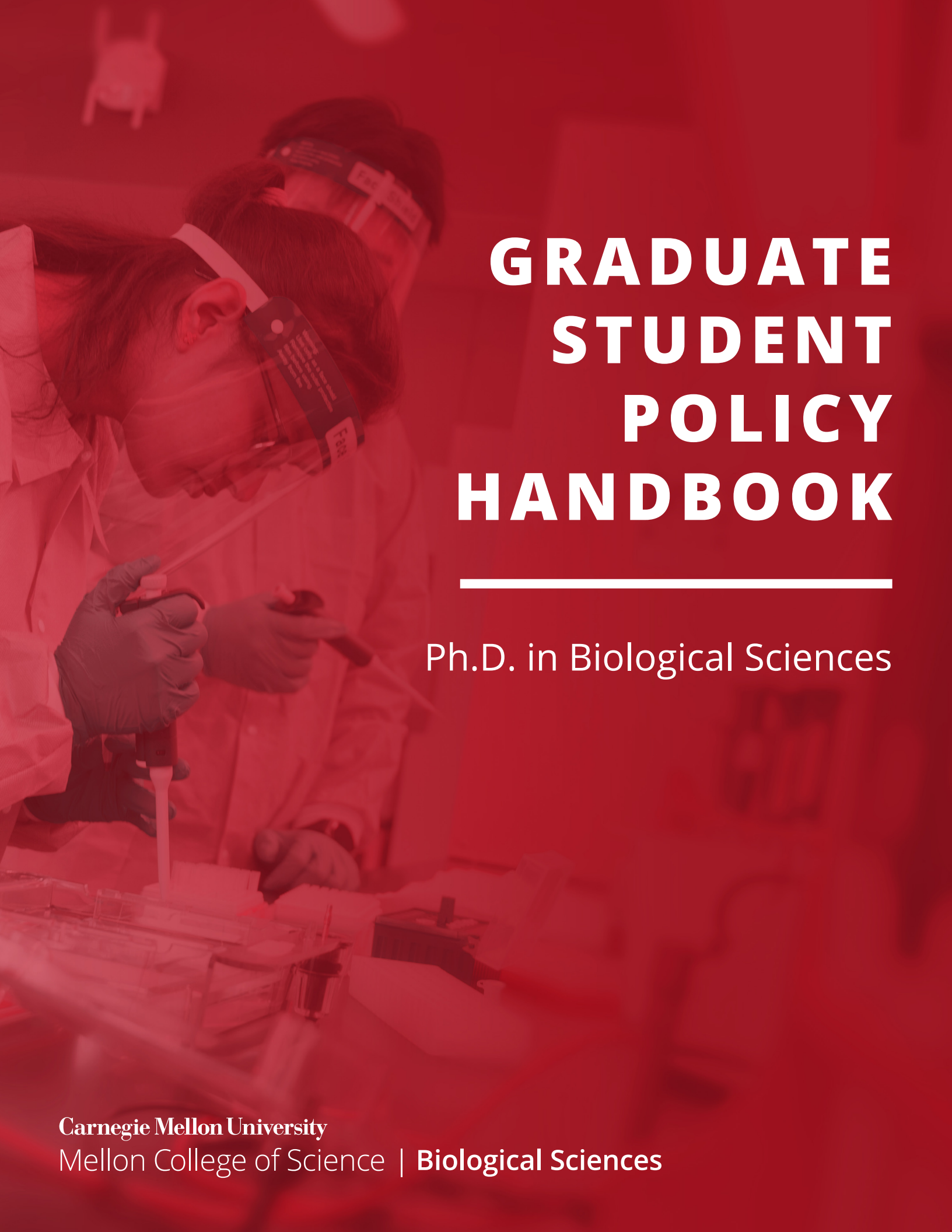

GRADUATE STUDENT POLICY HANDBOOK

Ph.D. in Biological Sciences

Carnegie Mellon University
Mellon College of Science | **Biological Sciences**

Ph.D. In Biological Sciences

RESOURCE HANDBOOK FOR GRADUATE STUDENTS

2024 – 2025 Academic Year

cmu.edu/bio

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Introduction

The Department of Biological Sciences has prepared this statement of policies and procedures to help answer questions that students may have as they enter the Ph.D. program. This document specifies the departmental requirements that students must fulfill to be in good standing; failure to meet any of these requirements may result in loss of financial support or dismissal from the department.

The faculty and the Biological Sciences Graduate Programs Office provide ongoing guidance and assistance to students throughout their graduate careers. Students may discuss any questions or concerns with the Department Head, Assistant Department Head for Graduate Affairs, or Director of Graduate Operations at any time.

While this handbook is specific to your academic experience in the department, it is just one element of the Graduate Student Handbook Suite. There are several other resources within the suite that you should consult when needed:

- University-Wide Graduate Student Handbook (Office of Graduate & Postdoctoral Affairs)
- The Word Student Handbook

PROGRAM MISSION

The Ph.D. program in Biological Sciences aims to train new generations of scientific leaders who make significant and distinctive contributions to society.

The department has established a broad range of resources to enable the students to define and achieve their mission.

SUMMARY OF DEPARTMENTAL REQUIREMENTS

- Satisfactory completion of six lecture courses, of which four must be graduate courses from the Graduate Advisory Committee (GAC) proposed Core Elective list during the first year, and maintenance of 3.0 QPA (cumulative after the first year, rounded to the nearest tenth)
- Satisfactory completion of laboratory rotations, including oral presentations (first year)
- Satisfactory completion of Thesis Proposal Defense (second year)
- Annual Research Advisory Committee Evaluations (third through last year)
- Annual Research Club presentations (second through last year)
- Teaching assistantship: 10 points (first through last year)
- The total number of units required for completion of a Ph.D. in Biological Sciences is 384 units (fifth year)
- Students finishing their degree early may formally request any of the requirements from the department head.
- Satisfactory completion and defense of Ph.D. dissertation (fifth or sixth year)

Personnel

DEPARTMENTAL PERSONNEL

Veronica Hinman, Ph.D.

Department Head

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Department Finances, Grants, Operating Budgets, Purchase Orders, Billing, Policy & Compliance Advising

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Postdocs Job Posting (Interfolio), Hiring and Reappointments, Visitor Processing, Visa Processing, Mellon Institute Building Access

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Proposals, Funding Opportunities, Pre-Award Sponsor Requests (JIT, Revised Budget)

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Administrative Coordinator

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Assistant to the Department Head, Faculty Promotion and Tenure Cases, General Departmental Inquiries, Departmental Seminar Coordinator, Purchasing Card Verifications

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Reimbursements, Purchase Orders, Vendor Payments

COLLEGE-LEVEL CONTACTS

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MCS Associate Dean for Graduate Students

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Gwen Stanczak

MCS Director of Graduate Programs

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UNIVERSITY-LEVEL CONTACTS

Graduate Student Ombudsperson

5000 Forbes Ave, 412-268-1018
ombudsperson@andrew.cmu.edu

Students may confer with the university graduate student ombudsperson on issues of process or other concerns as they navigate conflicts.

John Hannon, Ph.D.

Student Affairs Liaison

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Section 1. Degree Attainment

Courses and Grades

COURSEWORK

To receive the doctoral degree, all students must complete at least six lecture courses, including four graduate-level courses, and up to two of the six can be undergraduate courses.

- All first-year students must take at least three lecture courses for credit in the first two semesters. Courses taken pass/fail or as an audit do not count toward this requirement. Total units earned each semester (including credit for doctoral research 03-900) must equal at least 48.
- To remain in good academic standing, students must achieve a 3.0 GPA (rounded to the nearest tenth) at the end of the first year.
- First-year students must also obtain a B or better grade in four courses selected from a list of Core Electives. The GAC will approve this list each year.
- Students with a B- or lower grade will do course remediation as directed by the course instructor and approval of the GAC. A passing grade on this exam will remediate the failing grade in the core elective, which will be upgraded to a B.
- Students must also meet expectations within the Rotation Assessment guidelines, which evaluate research skills and scholarship activities predictive of future success in the lab group. At the end of each rotation, there is a final oral presentation on the guidelines.
- To remain in the program, students must also find placement with a lab group by the end of the third rotation. Under particular circumstances, a fourth rotation may be allowed with approval from the GAC and Department Head.
- Under special circumstances, the GAC may determine that a student who fails to meet the program's requirements is placed on probation. The GAC will evaluate the specific requirements for remediation and probation and communicate them to the student and their advisor (if any).
- After the first year, each student's Research Advisor and the Research Advisory Committee may recommend additional courses to enhance the student's expertise in a subdiscipline.

Students continue to conduct research throughout the summer and, thus, are registered for Doctoral Thesis Research (03-900; summer section R, 36 units). They only take other summer courses if their advisor or another source meets the tuition obligations.

DEPARTMENTAL SEMINAR

All students must register for and attend the weekly departmental Graduate Seminar (03-750; 1 unit) each semester. Graduate students are urged to meet speakers to broaden their knowledge of cutting-edge biological science, discuss career paths and strategies, and make valuable contacts. The department often arranges lunch with the seminar speaker, or the faculty host can arrange group meetings for interested students. For speakers you are scheduled to meet with, we ask you to read a recent paper from their lab. First-year students are required to bring and complete speaker assessment forms.

DEPARTMENTAL RESEARCH CLUB

Each semester, all students must register for and attend the weekly departmental Research Club (Graduate Research Seminar 03-755; 3 units), during which students and faculty members give 25-minute presentations. Senior students (third through fifth) present their research results; typically, graduate students give at least three Research Club presentations during their time in the department. Each succeeding year, those students who speak at the Departmental Retreat or who are graduating by May of their fifth year are not required to present a Research Club that year.

In place of a Research Club presentation during their first year, students give brief oral presentations describing each rotation project (scheduled after each rotation).

During orientation week and a workshop before the first rotation talk, students are instructed on giving an effective rotation talk. Second-year students do not present at the Research Club.

DOCTORAL RESEARCH

Students register for Doctoral Research (03-900; variable units) each semester, including the first year. 03-900 encompasses the laboratory rotations during the first year and the thesis research during all the succeeding years.

INTERNSHIP OPPORTUNITIES

Optional summer internships for course credit (with CPT authorization) may be counted toward elective credit for students in the PHD program. CPT authorization depends on the regulations set by the Office of International Education; any internship should be discussed with the PI and Graduate Advisory Chair prior to applying.

REGISTERING FOR CLASSES

Beginning with the first fall semester, students register online for their classes; information is available at Course Registration. Students register online at http:// www.cmu.edu/hub/sio with an Andrew ID. All students must register as full-time status for their tenure in the program.

- During year 1, students must carry 48 units each semester.
- During years 2–6, students register for at least 36 units (full-time status) per semester.
- Please note that the Biological Sciences Graduate Programs Office can only register its students for its own (i.e., 03-xxx) classes.

GRADES

Students must remain in good academic standing and achieve a 3.0 QPA (rounded to the nearest tenth) at the end of the first year. First-year students must also complete six courses, of which four must be graduate courses from the GAC proposed Core Elective List, and up to two of the six can be undergraduate.

Failure to meet these requirements is grounds for dismissal from the program. Under special circumstances, however, the GAC may determine that a student who fails to meet these program requirements will be placed on probation. GAC will determine specific probation remediation requirements and communicate to the student and their advisor (if any). The course instructor will not alter the student's final course grades because of any remediation that may occur during the probationary period.

Laboratory Rotations

Laboratory rotations enable first-year students to investigate which laboratory and mentor best match their interests. They also allow the faculty to determine whether students have the motivation, talent, and background to be successful Ph.D. students in their labs. Additional benefits of rotations include expanding one's knowledge into other subdisciplines of biology and making meaningful connections to the scientific community within the department. Rotations outside the department expose students to broader scientific interests and expertise.

- Graduate students must complete three laboratory rotations during the first year.
- The first rotation must be within the department.
- At least two rotations must be in laboratories of faculty who hold a primary appointment in the Department of Biological Sciences.
- Students may also rotate with Carnegie Mellon faculty in departments other than Biological Sciences. Students may sometimes rotate with faculty at other institutions (e.g., the University of Pittsburgh), provided these faculty members have advising privileges. They are associated with a departmentally approved interdisciplinary program.
- Under certain circumstances, students may complete only two rotations, a situation that is subject to approval by the GAC.
- Summer rotations are acceptable and subject to faculty availability and approval by the Department Head. There are two summer rotation start dates: June 1 and June 16.
- Subject to faculty availability and approval by the Department Head, students may be permitted to carry out a fourth rotation in May (rare cases); students who still need a Research Advisor after the end of the last rotation must withdraw from the program.

TIMING

Each of the three rotations lasts 8 – 12 weeks. If necessary, a fourth rotation may be scheduled for May, subject to approval by the department head.

2024 – 2025

Dates

Aug 26 – Nov 11 (11 weeks)

Nov 11 – Feb 18 (11 weeks)

Feb 18 – Apr 29 (9 weeks)

Rotation 1 Presentation

Nov 7 & Nov 14

Rotation 2 Presentation

Feb 7 & Feb 21

Rotation 3 Presentation

Apr 17 & Apr 24

Students must spend substantial time (at least 20 hours/week) in each laboratory rotation. Students must meet with their mentors and seek feedback about their performance. Students must discuss any deviation from the assigned schedule or project with the faculty rotation mentor.

CHOOSING ROTATIONS

The "Introduction to Research" talks given by faculty members during the departmental Student Orientation and the Annual Retreat equip each first-year student to choose their rotations. Students notify the Graduate Advisory Committee Chair of their choices for each (three choices in order of priority). The Department Head approves final decisions.

ORAL PRESENTATIONS

During the week following each rotation, students give brief, 7-minute presentations to the entire department that succinctly summarize their rotation projects. Each presentation includes the project's background and rationale, the question(s), the method(s) employed, the results and relevance, and future work.

EXPECTATIONS

Students must perform at a high level of intellectual engagement and physical effort in their projects. Typically, students spend at least 20 hours a week researching in their rotation labs, including doing benchwork, reading, attending lab meetings, and participating in discussions. Each rotation advisor discusses the students' expectations in the lab. The rotation advisor must complete the rotation assessment form. Students are encouraged to solicit feedback actively.

Lack of effort, poor performance, or other circumstances during lab rotations may prevent the student from finding a laboratory to conduct thesis research. A student without a Research Advisor after the end of the last rotation must withdraw from the program.

The Thesis Proposal Defense

The Thesis Proposal Defense evaluates the ability of the students to

(1) identify critical unanswered questions in various disciplines

(2) formulate scientific hypotheses or develop methods to solve those problems

(3) design and interpret scientific experiments

(4) write clearly and persuasively

Students prepare a written thesis proposal outlining the research they will conduct during their graduate work and defend this thesis proposal in an oral examination. The proposal should demonstrate an understanding of the background material, project rationale, experimental design, proposed project methods, and possible outcomes.

PREPARATION

Students join their labs mid-May/June 1 and discuss possible projects, committee members, and timing with their advisors.

- A top priority for students during the first summer in the lab is to engage in the intensive reading of the relevant literature to sharpen their understanding of possible projects and their significance in the field.
- By October 1, students meet with their committees to refine plans for the thesis project and select a defense date. One week before the pre-proposal committee meeting, each student provides the committee members with a one-page summary of the proposed project. During the meeting, the student makes a 15-minute project presentation using 3 to 5 slides for illustration.

TIMING

The Thesis Proposal Defense takes place in the late fall/early winter of the second year after students have spent 6–9 months working in the laboratory where they intend to conduct their thesis research.

- The deadline for completing the written proposal is February 1; however, students are encouraged to schedule the defense as early as possible.
- The Chair of the Graduate Advisory Committee must approve any delays.
- Students should submit the thesis proposal document to the student's committee at least one week before the oral defense.

FORMAT OF WRITTEN PROPOSAL

The Thesis Proposal follows the style of an NIH grant proposal with a maximum length of 15 single-spaced pages (11–12 pt. font; page limit includes figures but excludes Literature Cited).

Specific Aims (Approximately 1 Page)

State concisely and realistically what your research intends to accomplish and what hypotheses are tested. Write 1 – 2 general paragraphs introducing the subject and its relevance to biology, then list three or four specific questions to address. This section is critical because it provides a framework for the reader to appreciate the connections between sections of the proposal.

Significance (Approximately 4–6 Pages)

Briefly sketch the background to the proposal, critically evaluate existing knowledge, and specifically identify the gaps the project intends to fill, i.e., summarize the general knowledge of the field and identify where your questions fit. This critical section displays your knowledge and understanding of the field and its shortcomings. What are the major unanswered questions? Which questions can be answered in the proposal using the available tools? For which questions must new methods be developed?

Experimental Design And Methods (Approximately 8–10 Pages)

Discuss the experimental design and procedures to accomplish the project's specific aims. Include potential difficulties and limitations of the proposed procedures and alternative approaches to achieving the aims.

Literature Cited

The student should cite the proposal's references within the text by the first author and year (Smith et al., 1888; Wilson & Jones, 1919) and list at the end of the proposal in alphabetical order by the first author's last name. The page limit does not include references.

GUIDANCE

Students may seek guidance and feedback from their advisors about the general scientific directions they wish to take, the design of experiments, and the clarity of their presentations. However, the written proposal must be primarily the student's work.

Proposal Preparation and Peer Review Course (03-747, four units) is in the fall of the second year. This mini-course introduces second-year students to the structure and preparation of a structured research proposal and formalizes instruction in professional standards in research ethics, CV preparation, scientific writing, and data presentation. Course material is from actual grant proposals, previous years' qualifying exam proposals, primary research publications, and faculty grant proposals. This course is in addition to other resources available within the department and at the university.

THE RESEARCH ADVISORY COMMITTEE (RAC)

Each student chooses a Research Advisory Committee (RAC), which comprises the Research Advisor and at least two additional faculty members with relevant expertise in an allied field.

- At least two committee members must be faculty who hold primary appointments in the Department of Biological Sciences; the Research Advisor may be one of those two.
- The RAC selects a chairperson (someone other than the Research Advisor) to oversee the defense and completes the Thesis Proposal Defense form.
- The student defends their Thesis Proposal in front of the RAC.

THESIS PROPOSAL DEFENSE OUTCOMES

Students must achieve a "pass" to remain in the program. There are four possible outcomes of the Thesis Proposal Defense:

- "Pass" means that no corrections or only minor corrections are required and approved by the Research Advisor.
- "Conditional pass" means certain sections must be rewritten more clearly or designed somewhat differently. The student should make the changes within one week. The Research Advisory Committee should decide whether adequate changes have been made before a "pass" can be allowed.
- "Conditional fail" means the student must correct significant shortcomings within a reasonable time; a second oral defense must occur within one month.
- "Fail" means the student may not defend again and must withdraw from the program.

Once the thesis defense is completed successfully (full pass), the student is considered All But Dissertation in Residence (ABR) and a Ph.D. Candidate.

The Research Advisor And Committees

SELECTING A RESEARCH ADVISOR

To remain in the program, students must have a Research Advisor by the last day of the spring semester of the first year. Students submit their first and second advisor choices to the Graduate Advisory Chair.

Although usually a faculty member with a primary appointment in the Department of Biological Sciences,

a Research Advisor may hold a faculty position in another Carnegie Mellon department or, rarely, at another institution, provided they have advising privileges in the Department of Biological Sciences.

CHANGING A RESEARCH ADVISOR

A student may change advisors with the mutual consent of the new advisor and the Department Head. After verbal and written notification of problems, including lack of effort, research aptitude, failure to obey laboratory policy and procedure, failure to comply with university regulations, or behavior detrimental to the laboratory, an advisor may request a student leave the laboratory.

The Department Head will inform the student and the Research Advisory Committee about this action.

THE RESEARCH ADVISORY COMMITTEE

Each student and the Research Advisor select and invite a Research Advisory Committee (RAC). RAC consists of at least three faculty members: the student's Research Advisor (who serves as the Chair of the RAC) and at least two additional faculty members with relevant expertise in an allied field.

- At least two RAC members (including the Research Advisor) must be faculty members who hold primary appointments in the Department of Biological Sciences.
- This committee administers the Thesis Proposal Defense, meets with the student at least once a year to provide guidance, and monitors the overall progress of the research project. Scheduling these meetings is the shared responsibility of the Research Advisor and the student.
- For the Thesis Defense (see below), the Research Advisor and student select one committee member from another department or institution. However, students are encouraged to include local and external members as early as possible to provide broader advice during their graduate career.

After completing the research, the student writes the formal dissertation and submits it to the RAC in preparation for the Dissertation Defense. Students should consult their advisors about writing the dissertation.

THE THESIS COMMITTEE

The Thesis Committee comprises the RAC, with an additional member from outside the department invited to oversee the student's dissertation defense.

The Research Advisory Committee Evaluation

TIMING

Students are required to meet with their Research Advisory Committee at least once a year. After the meeting, students electronically submit the RAC form to the Graduate Programs Office. Students are encouraged to schedule their RAC meetings within a week after their Research Club presentations to facilitate a more in-depth discussion of research plans.

WRITTEN REPORT TO THE COMMITTEE

Students are strongly encouraged to complete Parts 1-4 of the RAC Report Form. Students are encouraged to respond in brief, bulleted format unless otherwise

directed. Students are expected to spend up to two hours preparing this document, except for the research progress summary (Question 1 of Part 1).

Note that this document will NOT become part of a student's permanent record in the departmental office. However, the student, advisor, and RAC may want to save a copy.

DOCUMENTATION

The Research Advisory Committee Evaluation Form should be completed by the RAC after each RAC meeting and electronically submitted to the Biological Sciences Graduate Programs Office.

Doctoral Dissertation And Graduation Procedures

As the final step in completing the Ph.D. in Biological Sciences requirements, students must write and publicly defend a Doctoral Dissertation. The dissertation should significantly contribute to science and contain material worthy of publication.

TIMING

Before the sixth year of study, the department notifies the student, the research advisor, and the department head that one year remains before the student must complete all requirements for the Ph.D. in biological sciences. A student on track to complete the Ph.D. in Biological Sciences on time should make an appointment with the Director of Graduate Operations as early as possible to discuss processes and procedures.

DISSERTATION

Students consult with their advisors about writing the doctoral dissertation, receiving ample feedback from their advisor and laboratory group about the format, style, and content. Typically, the writing process takes 1 – 2 months.

The student should distribute their completed dissertation to their thesis committee at least two weeks before their defense.

THE THESIS COMMITTEE

The Thesis Committee consists of the RAC, with an additional member from outside the department invited to oversee the student's dissertation defense.

PUBLIC PRESENTATION

The final examination consists of a public presentation of the doctoral candidate's work followed by private questioning by the Thesis Committee to determine the student's depth of knowledge and competency.

GRADUATION MATERIALS

To graduate, students who have passed their dissertation defense must electronically submit the following materials to the Biological Sciences Graduate Programs Office:

- PDF file of thesis
- PDF of the abstract and title page
- PDF Signature Page of Thesis
- PDF Dissertation & Thesis Submission Checklist
- PDF Consent to Publicly Livestream a Presentation

The graduate student submits these forms within two weeks of the dissertation defense.

All forms may be found at the Doctoral Dissertation and Graduation Procedures:
https://www.cmu.edu/bio/graduate/current_students/graduation_guide.html

GRADUATE DEGREE TITLE

The degree title is Doctoral of Philosophy in Biological Sciences.

GRADUATION CEREMONIES

Three May graduation ceremonies pertain to doctoral students. We encourage students to participate in the May events because there are no August or December commencement ceremonies. Students who graduate in December must contact the Biological Sciences Graduate Programs Office for details.

The Department of Biological Sciences Diploma Ceremony is held the Saturday before the university-wide Sunday Commencement. Students who graduated in December and May are eligible and strongly encouraged to participate.

The Mellon of College Doctoral Candidate Hooding Ceremony occurs Friday afternoon before the Department of Biological Sciences Ceremony. Doctoral students are individually recognized and hooded. ONLY students who have successfully defended their dissertation before the May graduation date are eligible to be hooded. Any request for an exception should be directed to the Associate Dean for Graduate Affairs at the Mellon College of Science.

The Carnegie Mellon University Commencement Ceremony is on Sunday. Students who graduate in December, May, or August are eligible to participate.

TERM LIMITS

The department supports the student for six years. This period is exclusive of any official leave of absence. The student, the Research Advisor, the Research Advisory Committee, and the Biological Sciences Graduate Programs Office cooperate in monitoring the student's time limit and the progress required to meet the six-year deadline.

PETITION PROCESS

A student unable to complete the Ph.D. in Biological Sciences by the deadline may petition the Department Head for a one-semester extension of the six-year limit. Petitions must be filed early in the first semester of the sixth year. A student may request additional extensions on a semester-by-semester basis. Extension beyond the normal term limit of six years is granted only under the most extraordinary circumstances (e.g., student illness, adverse conditions for research, advisor-related difficulties, change in the laboratory, and so forth). Also, petitioned extensions must be within the university's statute of limitations for doctoral students. Please refer to the Doctoral Student Status Policy.

A petition for an additional semester should include the following:

- an explanation of the factors causing the delay in completion of the degree
- a plan to resolve the factors causing the delay
- an attached letter from the student's Research Advisory Committee detailing the timetable
- for the next semester and stating that there is a reasonable expectation that the student will complete the work within the next semester

For granted petitions, the student must follow the timetable established in the petition under the guidance of the student's Research Advisor and Research Advisory Committee. For denied petitions, the student is no longer a doctoral candidate and must leave the program.

Additional Requirements

TEACHING

Students are required to serve as teaching assistants (TAs) during their tenure in the department. The assignments may require the student to assist the faculty instructor in preparing materials for class, grading student work, leading review sessions, holding office hours, and bookkeeping. No student is required to serve as the instructor for a course or have final judgment on course grades.

Assignments are made in July and are subject to approval by the Department Head.

In addition, the Mellon College of Science requires that all T.A.s complete the online Preventing Workplace Harassment training course. The course is designed to help T.A.s understand what constitutes harassment, how to avoid engaging in behavior that could be considered harassing, and what to do if you witness or experience harassment. You will receive an email from H.R. early in the fall to register for the training.

ENGLISH LANGUAGE PROFICIENCY

Graduate students are required to have a certain level of fluency in English before they can instruct in Pennsylvania, as required by the English Fluency in Higher Education Act of 1990. Through this Act, all higher education institutions in the state are required to evaluate and certify the English fluency of all instructional personnel, including teaching assistants and interns. The full university policy can be reviewed at: https://www.cmu.edu/policies/faculty/evaluation-certification-english-fluency-instructors.html. Language Support in the Student Academic Success Center will rate the fluency of all instructional personnel to determine at what level of responsibility the student can. T.A. Language Support in the Student Academic Success Center helps T.A.s who are non-native English speakers develop fluency and cultural understanding to teach successfully at Carnegie Mellon. Visit the Student Academic Success Center website for additional information: https://www.cmu.edu/student-success/.

Because the Department of Biological Sciences believes that excellent English skills are essential, we strongly recommend that students whose native language is not English achieve a PASS by the end of their second year.

STUDENT ACADEMIC RESPONSIBILITIES

Student responsibilities include consistent attendance and participation in the following activities:

- The Elizabeth Jones Annual Retreat in its entirety
- The Departmental Seminar (03-750) Attendance
- Meetings with the Seminar speaker
- The Departmental Research Club (03-755) attendance and presentation

OTHER STUDENT RESPONSIBILITIES

Second-year students are expected to maintain representation in the Graduate Student Assembly and be responsible for the financial records of the graduate students.

HONORARY SOCIETIES

Graduate students are encouraged to belong to professional societies such as Phi Kappa Phi and Sigma Xi and are nominated by the department if qualified. They are also urged to join societies specific to their subdisciplines.

COMMITTEE WORK

Participation in committees is essential to being a good citizen of the department. Students are encouraged to work in one or more of the following committees:

- The Seminar Committee
- Student-Invited Speaker Series (SISS) Committee
- The Graduate Student Host Committee
- The Recruiting Committee
- The MCS Graduate Student Action Committee (GSAC)
- The Graduate Student Assembly (GSA)
- Biological Sciences Career Development Committee (BioSciCDC)

In addition, students may request to provide occasional help ad hoc (e.g., retreat, website). Student participation in any of the above is very much appreciated.

Status

Failure to carry out research, training, or teaching assistant responsibilities, an unexcused absence, or other unprofessional behavior is grounds for dismissal from the Ph.D. program. The Department Head and the Chair of the Graduate Advising Committee review such cases.

To be considered full-time, first-year students must register for at least 48 units during the first two semesters; all other students must register for at least 36 units. Any questions about registration should be directed to the Biological Sciences Graduate Programs Office.

Students who need to change their status must speak with their advisor; the Department Head approves all changes.

WITHDRAWAL

A student dismissed from a lab may seek another lab with the permission of the Department Head. If the student elects not to do so or another lab is not found, the student is automatically dismissed from the doctoral program.

Transition assistance is available; please contact the Chair of the Graduate Advisory Committee.

TERMINAL MS DEGREE

The Department of Biological Sciences does not have a formal program leading to an M.S. in Biological Sciences degree. However, students who have been making significant research progress toward their doctorate but are unable to continue in the program may be eligible to receive an M.S. degree if their Research Advisor and the Department Head deem this appropriate. Each case is considered on an individual basis.

Section 2. Resources Academic Advising Orientation

Academic Advising

ORIENTATION

For incoming graduate students, there are two orientations. Both events occur in the weeks before the beginning of the fall semester.

- The University-wide orientation organized by the Office of Graduate Education and Postdoctoral Affairs introduces the students to university resources and services, such as things to do before and after arrival on campus, resources for living in Pittsburgh, and key dates and deadlines.
- The Departmental Orientation introduces them to departmental faculty, research, administration, policies, and services. The Biological Sciences Graduate Programs Office arranges for students to receive the necessary information for enrollment, registration, and timelines.

ADVISING FOR COURSEWORK

Before the fall and spring semesters, each first-year student meets individually with the Graduate Advisory Committee to select courses. After the first year, the Research Advisor and the Research Advisory Committee may recommend additional coursework.

MONITORING PROGRESS

The Research Advisory Committee meets with the student at least once a year, providing guidance and monitoring the student's overall progress. After each annual review of the student's work, the committee completes the Research Advisory Committee Evaluation Form. The student is encouraged to review this report and discuss any problems with the Research Advisor. Email the form to the Director of Graduate Operations.

Students with specific concerns about their progress are urged to speak with their Research Advisor or the members of the Research Advisory Committee.

Alternatively, the Graduate Advisory Committee Chair and the Department Head are available for counsel.

NOTIFICATION OF INADEQUATE PROGRESS TOWARD THE DEGREE

If the Research Advisory Committee determines the student is making unsatisfactory progress, the student and the RAC must formulate a plan to correct any deficiencies. Continued failure to make satisfactory progress is grounds for dismissal from the program.

STUDENT RIGHTS IN ACADEMIC CONFLICTS

A student wishing to appeal a departmental disciplinary decision should speak directly with the faculty member (instructor or Research Advisor). Suppose the student is uncomfortable approaching

the faculty member. In that case, they may speak with the Director of Graduate Operations, who serves as Graduate Ombudsperson for Biological Sciences and will keep all conversations confidential at the student's request. Students can also speak with one or more members of the Graduate Advisory Committee if needed. The student is referred to the Department Head if the conflict cannot be resolved. Then, with the student's permission, they meet with the faculty member involved. The student may also meet with the MCS Ombudsperson. The Mellon College of Science Grievance Procedures is available at http:// www.cmu.edu/mcs/policies/grievance.html.

A student not satisfied with the achieved resolution may file a formal written appeal to both the Associate Dean for Graduate Affairs and the Dean of the Mellon College of Science. The policies and procedures governing this process are explained in The Word/Student Handbook section entitled "Academic Standards and Actions."

ETHICS

Students are always expected to conform to the highest ethical standards; consequences for academic or scientific misconduct are severe and may include dismissal from the program. The University Policy on Academic Integrity includes

University expectations around academic integrity and provides definitions of cheating, plagiarism, and unauthorized assistance.

In addition, the University's Academic Disciplinary Actions procedures outline the process of investigating, reporting, and adjudicating violations of the University Policy on Academic Integrity.

Carnegie Mellon's Office of Research Integrity and Compliance is committed to maintaining the integrity fundamental to research activities through the responsible and ethical conduct of its faculty, staff, and students. The Responsible Conduct of Research (RCR) is a widely accepted set of ethical principles and professional standards for conducting research in the university community. CMU provides a variety of Responsible Conduct of Research seminars as listed in the RCR core elements

RESOURCES AND REGULATIONS GOVERNING RESEARCH AT CARNEGIE MELLON

- Office of Sponsored Programs (www.cmu.edu/osp)
- Office of Research Integrity & Compliance (www.cmu.edu/research-compliance/index.html)
- Intellectual Property Policy (www.cmu.edu/policies/administrative-and-governance/intellectual-property.html)
- Policy on Restricted Research (www.cmu.edu/policies/research/restricted-research.html)
- Human Subjects in Research Policy (www.cmu.edu/policies/research/human-subjects-in-research.html)

Career and Professional Advising

SCIENTIFIC SPEAKING SKILLS

Students receive formal training in scientific speaking during their Ph.D. tenure. They get a quick primer on presentations before the first rotation talks in the Fall semester of their first

year. Then, they can present during the Graduate Research Seminar (03-755). This course is required during their 3rd through 5th years to give a 25-minute presentation on their research results. The PI and lab assist the student with practice sessions. Another opportunity to present is at The Departmental Retreat, similar to the 03-755 course. Students are also encouraged to participate in seminars and workshops provided by various campus resources, such as the Student Academic Support Center and the Public Communication for Researchers (PCR).

SCIENTIFIC WRITING SKILLS

Students receive formal training in scientific writing during the fall semester of their second year. 03- 747 – Proposal Preparation and Peer Review is a mini-course designed to introduce second-year students to the structure and preparation of a structured research proposal and formalize instruction in professional standards in research ethics, CV preparation, and scientific writing and data presentation. Course material is from actual grant proposals, previous years' qualifying exam proposals, primary research publications, and faculty grant proposals. The course is highly interactive, and students are required to participate in the review of each other's work throughout the course.

Coursework is expected to form the basis of the Ph.D. qualifying exam proposal in the winter of the second year.

CAREER AND PROFESSIONAL DEVELOPMENT CENTER (CPDC)

The Career and Professional Development Center (CPDC) provides students with access to campus job fairs and workshops on various topics. On-site career consultants can also help students with resumes and mock interviews. Students are encouraged to avail of these services via TartanTRAK.

CAREER ADVISING

Students are strongly encouraged to use the myIDP tool, available for free at http:// myidp.sciencecareers.org/, to explore and document suitable career pathways that match their skills and broad interests. Students may also request informational networking with program alums or potential employers who have departmental connections and practice interviews before any on-site job interviews.

Training and Support Services

Office of Graduate and Postdoctoral Affairs

The Office of Graduate and Postdoctoral Affairs (https://www.cmu.edu/graduate/incoming/index.html) supports you as you transition to life as a graduate student at the university level. Below are the resource highlights for graduate students.

- Graduate Student Assembly
- Student Academic Success Center
- Community Health and Well-Being
- Center for Student Diversity and Inclusion
- Office of International Education (OIE)
- University Policies

- Graduate Student Appeal and Grievance Procedures
- Student Parental Accommodation Protocols
- Student and Student Life Policies
- Individual Development Plans (IDPs)
- Campus Support & Services
- Career Services for Graduate Students
- Community
- Diversity, Equity, Inclusion and Belonging

LIBRARIES

Three university libraries provide research support for science students: Sorrells Engineering and Science Library, Hunt Library, and Mellon Institute Library. The Mellon Institute Library contains materials for biology, biochemistry, chemistry, environmental sciences, and industrial health.

TEACHING SUPPORT AND OPPORTUNITIES

Students should avail themselves of Carnegie Mellon's Eberly Center for Teaching Excellence, which sponsors courses on preparing and presenting course lectures, understanding students, formulating syllabi, writing exams, and other topics. The university also sponsors seminars on teaching for T.A.s and students considering careers in academic settings.

COMPUTING SERVICES

Many general computer questions can be resolved quickly by contacting the Help Center (412-268- HELP [8-4357] or advisor@andrew.cmu.edu).

If the Help Center cannot resolve a problem remotely, the departmental I.T. Support Consultant can provide hands-on technical support for computers, printers, and software. To place a service request to the I.T. Support Consultant, email bio-it-support@andrew.cmu.edu. For emergencies, call the I.T. Support Consultant directly at 8-1990.

In addition to general technical support, the I.T. Support Consultant can help with computer purchases, software purchases, and computer retirement and disposal.

HONORARY SOCIETIES

Graduate students are encouraged to belong to professional societies such as Phi Kappa Phi and Sigma Xi and are nominated by the department if qualified. They are also urged to join societies specific to their subdisciplines.

STUDENT ORGANIZATIONS

Students are encouraged to participate in the following departmental student-driven organizations:

- Biological Sciences Career Development Committee (BioSciCDC)
- Student-Invited Speaker Series (SISS) Committee

Students' involvement complements their academic development as well as their professionalization.

Compliance Issues

ENVIRONMENTAL HEALTH AND SAFETY TRAINING

Each Department of Biological Sciences PhD graduate student must complete laboratory, chemical, and biological safety training presented by Environmental Health & Safety during the Departmental Graduate Student Orientation. Their training must be completed before beginning regular coursework; students who work with or near radioactive substances must undergo radiation safety training.

ANIMAL TRAINING

Animal training is required for any individual listed on an animal protocol. Currently, training is offered through the University of Pittsburgh Animal Research Protection Office and must be completed before research studies involving laboratory animals can begin.

For more information on training, please contact the IACUC at 412-383-2008 or iacuc@pitt.edu.

Section 3: Financial Support And Benefits

RESIDENCY REQUIREMENTS

University regulations require at least one year of full-time residency to be a candidate for a doctoral degree. Residency means the student lives in Pittsburgh and works full-time in coursework and research at Carnegie Mellon.

PERIOD OF SUPPORT

The department guarantees support for each student making satisfactory progress for a maximum of six years. Support from training grants, research grants, fellowships, or departmental funds may require students to participate in additional activities stipulated by the source of funds. The university or the department does not fund students who are in absentia or on leave of absence.

STIPEND AND TUITION

Students supported by the department or from a faculty members' grant receive a stipend for 12 months throughout the year, payable on the 15th and the last working day of each month. Students must make satisfactory academic progress and fulfill any requested teaching, seminar, or coursework assignments to be eligible for financial support. All graduate students supported by the department (i.e., students not holding fellowships) receive the same stipend, regardless of the year entering the program, teaching responsibilities, or laboratory assignment. The department does not equalize differences in tax withholding.

Students also receive complete tuition remission for the fall and spring semesters. Payment of tuition for any summer classes, including those audited, is the responsibility of the student or the Research Advisor. Tuition information is available at https:// www.cmu.edu/sfs/tuition/graduate/.

Please note that the first paycheck arrives on August 31; thus, each student should bring enough money to pay for all deposits.

OUTSIDE EMPLOYMENT

Outside employment or consulting for our graduate students in the Department of Biological Sciences is prohibited.

SUMMER EMPLOYMENT

Students receive their stipends bi-weekly, twelve months per year; thus, summer employment is prohibited.

CHANGE IN FINANCIAL SUPPORT

Changes in financial support must be conveyed in writing to the student at least four weeks ahead of time. Students requiring a change in tax withholding or local municipality should notify the Business Manager.

OUTSIDE FELLOWSHIPS

Students are encouraged to obtain their funding source through fellowships such as those sponsored by the National Institutes of Health (NIH) or the National Science Foundation (NSF).

All applications must be submitted through the Business Manager's Office. The Business Manager must be notified before the application is submitted and receive a full, completed copy of the application. The department and the university administer all fellowships. Students whose award amount is lower than the current stipend level receive a supplement to bring their stipend up to the departmental level; students receive the total fellowship amount if it exceeds the departmental stipend level.

DEPARTMENTAL GRANTS

Graduate students who show extraordinary dedication to teaching are eligible for the Department of Biological Sciences Annual Graduate Student Teaching Grant. Nominations are solicited from instructors in the early spring; criteria for consideration include:

(1) preparation and knowledge of the material

(2) dedication and responsiveness to students and instructors

(3) initiative

(4) general work ethic, including attendance in class and office hours

The recipient receives the award during The Elizabeth Jones Annual Retreat in the fall.

Graduate students who contribute positively to the best interests of their fellow graduate students, community, or department are eligible for the Department of Biological Sciences Leadership Grant. Nominations are solicited from the department in early spring. The recipient receives the award during The Elizabeth Jones Annual Retreat in the fall.

The Semon Stupakoff and Margaret Carver provide endowments for our graduate students. Below are the names of the grants:

Margaret Carver Research Enrichment Grant

Stupakoff Graduate Student Research Enrichment Grant

Enhance their research through activities such as buying time on instrumentation, attending advanced courses, traveling to collaborator's labs, or other activities that can be demonstrated to enhance research that would otherwise not be possible.

Margaret Carver Grant for Enhancing Diversity, Equitability, and Inclusion

Enhance diversity, equitability, and inclusion in the department, CMU, Pittsburgh, and the wider community. These activities include workshops, symposia, social events, outreach with local students, website development, social media, or resource development. Funds may supplement activities undertaken for NSF fellowships or similar other grants.

Stupakoff Outstanding Research Paper Grant Margaret Carver Outstanding Research Paper Grant

Students who were judged to have the best research paper.

Margaret Carver Travel Grant

Travel funds for professional reasons, including conference attendance, working with a collaborator, etc.

COLLEGE AND UNIVERSITY

Graduate students who demonstrate excellence in research with MCS are eligible for the Guy C. Berry Research Award.

Graduate student Teaching Assistants are also eligible for teaching awards at the college and university levels.

- The Mellon College of Science Hugh D. Young Graduate Student Teaching Award
- The Carnegie Mellon Graduate Student Teaching Award

ATTENDING CONFERENCES

Students funded through outside agencies may receive an allowance of travel money for this purpose. The Department of Biological Sciences sponsors the Dr. Margaret Carver Biological Sciences Graduate Student Travel Grant for students in their third through sixth years.

Students are encouraged to join scientific societies pertinent to their area of research. Many of these societies have local chapters and student memberships at reduced rates, and they may also have funds available to defray expenses to attend society meetings.

MCS provides supplemental conference travel funding for MCS graduate students. The funding goal is to enable MCS graduate students to attend and participate in key conferences and workshops that advance their research. Travel awards up to $500 are available to individual graduate students or a group of graduate students attending the same meeting.

The MCS Graduate Student Conference Funding Award is a partial source of support. Applicants must seek funds from other sources first. Priority will be given to applicants:

(1) who have already secured travel funds from sources (i.e., advisor, department, professional societies, conference, or workshop travel funds)

(2) who are giving research talks, presenting posters, or attending a conference or workshop

(3) a confirmed presentation or poster is not required at the time of application but is required to receive final funding

ANNUAL TIME-AWAY-FROM PROGRAM

The university policy for setting guidelines for annual time-away-from-program of seven days for nine-month programs and 10 days for 12-month programs, in addition to official university holidays, to encourage student well-being and balance.

Qualifying doctoral students are defined as having full-time enrollment in a CMU doctoral program, are making satisfactory progress toward their degree in line with program policy, and are stipend-supported and not receiving full external support from another source.

FACILITIES AND EQUIPMENT

The department owns and maintains equipment such as centrifuges and autoclaves for departmental members' use. Each graduate student is responsible for being trained in properly using and maintaining this equipment. It is also imperative that logs are signed and any problems noted. Individual laboratories are liable for repair and replacement costs if their personnel misuse equipment.

ACCESS TO MELLON INSTITUTE

Access to the Mellon Institute is granted through CMU IDs. The Director of Graduate Operations must approve access.