



GRADUATE STUDENT POLICY HANDBOOK

M.S. in Computational Biology

Carnegie Mellon University
Mellon College of Science

M.S. in Computational Biology

RESOURCE HANDBOOK FOR GRADUATE STUDENTS

2024 Matriculating Students

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Welcome

The directors and assistant director of the Masters in Computational Biology program (MSCB), which is a joint offering from the Department of Biological Sciences and the Computational Biology Department, would like to welcome you to the program and to Carnegie Mellon University! This document explains the policies of the MSCB program. You should read it thoroughly.

MSCB MISSION STATEMENT

The MSCB program seeks to train the world's best Computational Biologists at the Master's level. The curriculum provides both breadth and depth of training in Computational Biology and is built on a solid foundation of Biology, Computer Science, Statistics, and Machine Learning (Data Sciences). Interested students are also given opportunities to pursue research. Our graduates are prepared for rewarding jobs in industry or to pursue their doctoral degrees at top universities.

INTRODUCTION

The Department of Biological Sciences and the Computational Biology Department have prepared this statement of policies and procedures to help answer questions that students may have as they enter the M.S. in Computational Biology (MSCB) program. This document specifies requirements that must be achieved in order to be a student in good standing; failure to meet any of these requirements may result in dismissal from the program.

The MSCB Steering Committee and Graduate Programs Offices in both departments provide ongoing guidance and assistance to students throughout the course of their graduate career, and any questions or concerns may be discussed with either the faculty of the MSCB Steering Committee or the Department Heads at any time. The Word/Student Handbook which details university-wide policies, is available upon request from the Graduate Programs Office.

UNIVERSITY POLICIES & EXPECTATIONS

It is the responsibility of each member of the Carnegie Mellon community to be familiar with university policies and guidelines. In addition to this departmental graduate student handbook the following resources are available to assist you in understanding community expectations:

The Word/Student Handbook: www.cmu.edu/student-affairs/theword//index.html
Academic Integrity Website: www.cmu.edu/academic-integrity

University Policies Website: www.cmu.edu/policies/

Office of Graduate and Postdoctoral Affairs Website: www.cmu.edu/graduate/policies/index.html

Program Contacts

MSCB STEERING COMMITTEE FACULTY

Whom to contact for what?

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Academic Advising and Course Selection, Periodic Academic Progress Checks, Change to P/F, Research for Credit, Graduation Certifications, Student Life Issues, International Student Issues,

Oral Communication Skills, Alumni Networking, Professional Issues and Social Events, Career Center and Industry Liaison, Diploma Ceremony

PROGRAM FACULTY

<http://www.cbd.cmu.edu/directory/faculty/voting-faculty/>

<https://www.cmu.edu/bio/people/faculty/index.html>

PRIMARY SUPPORT STAFF

Ena Miceli

Director of Graduate Operations (Biological Sciences Graduate Programs Office)

MI 415

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Graduate Student Database Management, Pre- and Post- Admission Procedures through Graduation, Biological Sciences Graduate Ombudsperson, Graduation Certifications, Diploma Ceremony, Orientation Coordination

Janet Garrand

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Admissions via Applygrad, social events host, career events host, academic coordinator for CBD, SCS affairs, Gates-Hillman MSCB student office and building access

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COLLEGE LEVEL CONTACTS

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David Garlan, Ph.D.

SCS Associate Dean for Masters 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 ombudsman on issues of
process or other concerns as they navigate
conflicts Suzanne Laurich-McIntyre, Ph.D*

John Hannon, Ph.D.

Student Affairs Liaison
Warner Hall 300
412-268-2139
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*Supporting students to manage mental and
physical health and other personal issues including
finding appropriate resources and help managing
impact on coursework and life outside of classes.*

PROGRAM INFORMATION

Program Directory: <http://www.cmu.edu/ms-compbio/people/index.html>

Section 1. Degree Attainment

Courses, Grades, Forms, & Student Status

COURSEWORK

Before beginning courses, all students are required to satisfactorily complete an academic integrity instructional module, as proscribed by the Steering Committee.

The university's complete Schedule of Classes can be found at www.cmu.edu/hub.

To receive the M.S. degree, students must successfully complete these requirements:

- (A) 144-153 units of coursework toward the degree, which includes courses in specific categories as listed below
- (B) Average grade of B or above (GPA = 3.0) in those 144-153 units counted toward degree certification
- (C) Full-time course registration (at least 36 units) for each semester in the program
- (D) Coursework consists of:
 - (1) Foundation Courses (up to 69 units):

All must be completed in first year,

A minimum grade of B- is required in each course taken.

- 02-601 Programming for Scientists (12 units, Fall)
- 02-613 Algorithms and Advanced Data Structures (12 units, Fall or Spring)
- 02-680 Mathematics and Statistics for Scientists (9 units, Fall)
- 03-604 Professional Issues (3 units, Fall)

- 03-709 Applied Cell and Molecular Biology (12 units, Fall)
- 03-621 Genomes, Evolution, and Disease: Introduction to Quantitative Genetic Analysis (9 units, Spring)
- 02-620 Machine Learning for Scientists (12 units, Spring)

Notes

The first 5 foundation courses (02-601, 02-602, 02-613, 02-680, and 03-709) should be taken during the first semester of the program, although they can be repeated if a grade lower than B- is achieved. 03-621 is taken in the student's second semester.

The Professional Issues in Computational Biology course is a Pass/Fail course and must be passed in order to complete the MSCB degree.

The MSCB Advising committee may waive the following foundation courses if the student demonstrates proficiency through a placement exam for: 02-601, 02-680, and 03-621; or a project for 03-709. Placement exams & project are completed before the start of the fall semester. If a student misses the placement exams because of illness or immigration delays, then s/he must contact the committee before the start of classes to schedule a time to take the exam(s).

If more than 9 units of a foundation coursework is waived, a corresponding number of required depth course units (see below) will be added. For example, a student who waives 12 units of foundation coursework will have to take an additional 3 units of depth coursework. Thus, the minimum degree requirement is 144 units. Students who place out of a foundation course should discuss alternative courses with the steering committee to ensure they are taking courses that fit with their background and preparation.

- (2) Breadth Courses (36 units)

Minimum C grade in each course counted toward graduation

Students must take each of the following breadth

courses (12 units each).

- 03-711 (Computational Molecular Biology and Genomics), offered every Fall; or 02-710 (Computational Genomics), offered every Spring.
- 02-712 (Computational Methods for Biological Modeling and Simulation), taken in Fall of second year.
- 02-750 (Automation of Biological Research), offered every Spring, can be taken concurrently with 02-620 or can be taken in Spring of second year.

IMPORTANT NOTE: Our program is a 4-semester program. 02-750 is a required course that is only offered in the Spring. Fewer than 10% of students graduate early (after 3 semesters). If you wish to attempt to complete your degree in 2 semesters, then you MUST complete 02-750 in your second semester.

(3) Depth Courses (minimum 48 units)

Minimum C grade in each course counted toward graduation

Includes graduate electives in the Computational Biology Department (02-XXX) and Biological Sciences Department (03-XXX).

- At least 24 units of depth courses must be taken from Biological Sciences, 03-XXX listed courses.
- At least 24 units of depth courses must be taken from Computational Biology, 02-XXX listed courses. Students may take 15-686 (Neural Computation) in place of 12 units of 02-xxx graduate courses.

NOTE: the following courses are not open to students in the MSCB program: 02-701, 02-762, 02-763, 02-801, 02-900, 03-744, 03-747, 03-755, 03-900, and 10-601. Also, the following courses have limited space and require special permission: 02-730, 02-760, 02-761, 03-730, 03-740, 03-741, 03-751, 03-762,

Any additional units needed to reach the minimum of 144 (due to more than 9 waived foundation units) can be taken as graduate-level coursework from either 02-XXX or 03-XXX courses.

Summer Internship (03-601, 3 units) can be counted as depth in either 02- or 03- categories, except for students in the Applied Studies degree (see section E) for whom the course is required.

Note: Courses that are cross-listed with the same number in the 02- and 03- departments may be substituted for one another.

Up to 12 units of research (02-700 or 03-699 or 03-700) with a faculty advisor may be counted toward the depth credits. Research should be approved by the Assistant Director. Students may take more than 12 units of research, but without a thesis, only 12 units may count toward graduation.

Research taken as 02-700 will count toward the CBD (02-XXX) requirement in the depth category; research taken as 03-700 will count as computational biology 03-7XX depth coursework. Students who do more than 12 units of research are encouraged to write an honors thesis (see "Graduation Honors and Awards"). Written approval from the full MSCB Steering Committee is needed to count more than 12 units of thesis research toward degree completion.

Any course not listed above will need written approval of the Assistant Director.

Note: Courses that are cross-listed with the same number in the 02- and 03- departments may be substituted for one another.

- Up to 12 units of research (02-700 or 03-699) with a faculty advisor may be counted toward the depth credits. Research should be approved by the Assistant Director. Research taken as 02-700 will count toward the CBD (02-XXX) requirement in the depth category; research taken as 03-699 will count as

computational biology 03-XXX depth coursework. Students may count up to 12 total units of 02-700 and/or 03-699 toward graduation (as depth), but students may take as many units as they like.

- Students who write an honors thesis (see “Graduation Honors and Awards”) may enroll in up to 12 units of 03-700 (MS Honors Thesis Research). These 12 units may also be counted as depth electives.
- Any course not listed above will need written approval of the Assistant Director.
- CMU undergraduate students enrolling for a continuing M.S. can use relevant courses from their undergraduate years to count toward M.S. degree. The courses used toward M.S. degree CANNOT be counted toward undergraduate degree certification. Undergraduate degree advisors need to verify and sign the Declaration of Carry-Over Credit form confirming no double counting.

IMPORTANT RULES FOR COURSEWORK

- All student course selections are subject to the approval of the MSCB Steering Committee.
- Students who place out of a foundation course should verify that they have the appropriate required for any elective Undergraduate courses listed by the Computer Science Department (15-XXX) are closed to MSCB students unless the course has a graduate number (15-6xx or higher)
- During the first two semesters, all coursework must count toward degree completion. Any exceptions require written permission from the Assistant Director.
- In the third semester, 36 units of coursework must be taken, but the student may take additional courses that don't count toward the degree. Exceptions require approval of the Assistant Director. Every course requires written permission from the Assistant Director.
- All course requirements must be fulfilled by the end of the students fourth semester. In addition to completing all remaining degree requirements, students may take other courses that don't count toward their degree with permission from the Assistant Director.
- Students must maintain full-time enrollment in the program (minimum 36 units per semester - the only exception that is allowed is if CMU Student Affairs and/or a medical provider request that a student be allowed to take a reduced course load).

If a student completes a computational biology internship, then they may receive three units of depth credit for each term for (03-601A fall/spring; 03-601R summer).

COURSE REGISTRATION REQUIREMENTS

in the first fall semester, students are pre-enrolled for the foundation courses. In subsequent semesters, students register online for their own classes. The 4 Easy Steps to Registration may be found at <https://www.cmu.edu/hub/registrar/registration/index.html>

- To be in good standing, students must be full-time, meaning they must take at least 36 units per semester.
- Requests for part-time status are only granted in rare, extenuating circumstances.
- Students are advised to take no more than 48 units in any semester.
- Requests to take more than 48 units require approval from the Assistant Director. Students need to meet all the following criteria: (1) have a QPA above 3.50, (2) justify the value of the added coursework to their goals, (3) show how they will balance the added work in their weekly schedule, and (4) justify the need to take the extra courses in the requested semester and not delay the class to a later semester.

COURSE FORMS

Pass/Fail Courses

Pass/Fail courses are strongly discouraged unless it is a course that is not counted toward the degree to the student's program of study or if there is a medical hardship in completing a course. Taking a course for credit indicates an intellectual commitment to the material and may be viewed more positively by other professors and potential employers than a Pass. Potential employers gain more information about a student's ability from seeing a letter grade on a transcript than from a P. Except for 02-602 Professional Issues in Computational Biology, Pass/Fail courses cannot be used to satisfy any MSCB program requirements or to satisfy any prerequisites.

With petition to and approval from the Assistant Director, students may elect to take a course Pass/Fail. Such a petition must give a compelling reason for taking a course Pass/Fail and must argue why that will not impact the student's program of study. Within the registration ADD period during the first two weeks of each semester, the student must fill out the Pass/Fail Approval Form and receive permission from the Assistant Director and the Department Head (Biological Sciences). Switching a course to Pass/Fail mid-semester will generally only be approved under special circumstances.

- Prerequisites may not be taken Pass/Fail.
- Classes taken Pass/Fail may not be used to fulfill graduation requirements, except for seminar courses and 02-602.
- Pass/Fail status is irrevocable.

Auditing a Course

With approval of the MSCB Steering Committee, a graduate student may audit a course by obtaining permission of the instructor or teaching department and completing the Course Audit Approval Form, including obtaining the signature of the Assistant Director. Audited classes are not taken for credit and cannot be used to fulfill graduation requirements.

NOTE: auditing a course does count toward the limit of units allowed per semester.

Adding a Course

During the early Add period of each semester, students may add a course by registering online. After the Add deadline, they may add a course by completing the Late Add Request Form and obtaining permission of both: 1) the instructor or teaching department and 2) the Assistant Director.

Dropping a Course

Students may withdraw from a course online. The university has a Drop deadline toward the end of the semester, after which the course appears on the student's transcript as withdrawn (W). The last day to withdraw from a class is the final day of classes.

Complete the Retroactive Add/Drop Petition form after the Drop deadline obtaining permission of both: 1) the instructor or teaching department and 2) the Assistant Director.

PITTSBURGH COUNCIL ON HIGHER EDUCATION (PCHE)

Carnegie Mellon University offers students the opportunity to take courses for credit through a cross-registration program (see Pittsburgh Council on Higher Education (PCHE) and Cross-registration below) and through the receipt of transfer credit from other accredited institutions. The Carnegie Mellon University transcript will include information on such courses: Carnegie Mellon courses and courses taken through the university's cross-registration program will have grades recorded on the transcript

and be factored into the QPA. All other courses will be recorded on this transcript, indicating where the course was taken but without grades. Such courses will not be considered for academic actions, honors, or QPA calculations. (Note: suspended students may take courses elsewhere; however, they may receive transfer credit only if their college's and department's policies allow this.)

Students needing assistance in registering for oversubscribed courses should contact the Assistant Director.

STATUS

Full-Time Status

Students must be registered for at least 36 units during each semester to be considered full-time. Any questions about registration should be directed to the Biological Sciences Graduate Programs Office or Enrollment Services (the HUB) or the Assistant Director.

Leave Of Absence

Students who need to delay their studies for personal, medical or academic reasons may do so with a Leave Of Absence (LOA; leaving the university temporarily with a commitment to return). Students must contact the Assistant Director and the program co-directors to discuss their plans and fill out the appropriate Leave Of Absence form. Final approval of LOA is pending approval of the MSCB Steering Committee. The student's place in the program will be held until a mutually determined time. For more information refer to <http://www.cmu.edu/policies>.

Withdrawal

Students who need to withdraw from the program (leave the university with no intention of returning) for personal, medical or academic reasons must contact the Assistant Director to discuss their plans and fill out the appropriate Withdrawal form. For more information refer to www.cmu.edu/policies/documents/StLeave.html.

STATUTE OF LIMITATIONS

As outlined in the Master's Students Statute of Limitations, <http://www.cmu.edu/policies/documents/MastersStudentStatuteLimitations.html>, students who have matriculated at Carnegie Mellon beginning Fall 2012 will complete all requirements for the master's degree within a maximum of seven years from original matriculation as a master's student, or less if required by a more restrictive department, school or college policy. Once this time-to-degree limit has lapsed, the person may resume work towards a master's degree only if newly admitted to a currently offered master's degree program under criteria determined by that program.

TRANSFERRING COURSES

The MSCB program does not accept transfer credits.

CMU undergraduate degree holders, please refer to carry-over course credit details.

CHANGING PROGRAMS

If an MSCB student accepts another program's offer to begin before matriculation in the MSCB program, the MSCB committee reserves the right to nullify the MSCB offer.

GRADES & ACADEMIC STANDING

To be in good academic standing, a student is expected to maintain a B average (GPA = 3.0) in the coursework that will be counted towards the degree. No grade lower than B- in foundation course(s) and no grade lower than C in other course categories shall be used for completion of degree requirements.

UNIVERSITY POLICY ON GRADES

This policy offers details concerning university grading principles for students taking courses and covers the specifics of assigning and changing grades, grading options, drop/withdrawals and course repeats. It also defines the undergraduate and graduate grading standards. The policy may be found at www.cmu.edu/policies/student-and-student-life/grading.html.

ACADEMIC PROBATION

If the MSCB Steering Committee determines that a student is making inadequate progress, it will notify the student in writing of the deficiencies and the consequences of failing to correct those deficiencies. Any student who's cumulative QPA is at or below 3.0 after one term or who is otherwise not making satisfactory progress toward their degree will receive a letter from the program placing them on academic probation. Under most circumstances, the student will be given one semester to earn a B average in the courses to be counted towards the degree.

Additionally, students who drop foundation courses or who don't earn minimum required grades in any classes (B- or higher in foundation classes or C or higher in other classes counting toward the degree) will also be placed on academic probation. Academic probation will end only when the student returns to a B average and fulfills the other requirements laid out in the terms of their probation. Failure to return to good academic standing after one semester dismissal from the program or other actions as decided upon by the administration of the program.

ACADEMIC INTEGRITY

At all times students are expected to maintain ethical conduct as described in the university policies on Academic Integrity.

Serious action will be taken against all students who are caught violating the CMU Academic Integrity Code (as defined here: <http://www.cmu.edu/academic-integrity/>).

In addition to university policies, course instructors set specific policies for every assignment in their course. Instructors typically state on their syllabus what types of collaboration are allowed or not allowed on different types of assignments. However, students are responsible for making sure they understand what kind of collaboration is allowed or not. If you are not 100% certain about what is allowed on an assignment, do not start working on it until you have contacted the instructor to clarify. Unintentional violations of course policy is still treated as violations of academic integrity and can result in course-level penalties and program level penalties.

Academic integrity violations on placement exams will be considered very severe and, in most cases, will result in the program requesting suspension or expulsion.

In addition to any course-level actions taken by instructors (e.g., giving the student a failing grade on the assignment up to a failing grade in the entire course without the option to withdraw), the program co-directors will impose penalties for academic integrity violations. Program level consequences may include any or all of the following: probation (see "Grades" below);

suspension for one or more semesters; dismissal from the program; required additional training on academic integrity; or other action as decided upon by the administration of the program.

Consequences for violations of academic integrity or other program policies will be determined by the program administration on a case-by-case basis with consideration of a variety of different factors, including:

- The severity of the violation, including factors such as the number of assignments in question, the weight of those assignments in the course, the type of violation, fraction of the assignment in question that violated course policy, overall impact of the violation on the academic environment in the course, impact of the violation on the academic environment in the program and university in general, and other factors determined by the two program co-directors.
- Whether a student has had an academic integrity violation in the past
- Lying about the facts of the violation or fabricating evidence to cover up a violation

In most cases, two violations (and in some a single violation that is severe or when the student lies about the facts of the case) are grounds for dismissal from the MSCB program.

Students may appeal whether a violation occurred and also course and/or program level outcomes following University procedures: <http://www.cmu.edu/academic-integrity>

Note that university policies about academic integrity are subject to change and students should review current procedures each semester.

Professional Development, Seminars, Research, & Internships

PROFESSIONAL ISSUES COURSE

Professional Issues in Computational Biology (02-602) meets weekly. This course presents an opportunity for students to learn about resources available to them on campus and outside, share knowledge, hone their professional skills, and network with other students, employers and alumni. The primary goal of this course is to position students for an on-time graduation and to empower students with the important tools necessary to find an internship, secure a job, or to further pursue a Ph.D.

All students will need to register for 02-602, a 3-unit course, and successfully complete the course with a pass grade during their first semester. This course contributes toward the units for graduation certification as well as the 36 units required for a student to be considered full-time. As a pass/fail course, it is not factored into a student's QPA. NOTE this is the only course that a student may count toward graduation with a "pass" grade aside from 3 more units of seminar (next section) which may count toward depth.

SEMINARS, INVITED TALKS, AND JOURNAL CLUB

Each semester, all students may register for and attend the weekly seminars (Graduate Seminar 03-750, 1 unit; Graduate Research Seminar 03-755, 3 units; and/or Graduate Seminar 02-702, 3 units). Graduate students are strongly urged to meet the speakers to broaden their knowledge of cutting-edge science and to make useful contacts; the faculty host can arrange individual or small group meetings for interested students.

Each semester, all students may attend the weekly Biological Sciences departmental Journal Club (Graduate Research Seminar 03-755; 3 units) during which Ph.D. students and faculty members give 20-minute presentations. Typically, M.S. students write and submit six 1–2-page reports about the presentations. The reports are due within a week of the talk and should be submitted electronically to Assistant Director.

Note: The above seminar courses are pass/fail; however, students may apply up to three units of seminars toward the graduation units. These courses are very beneficial in keeping abreast with current research and in networking, so we encourage students to enroll for these courses, particularly if they are interested in pursuing a Ph.D. or other advanced degree.

Invited talks from outside speakers and alumni are arranged throughout the year. They will be announced via e-mail.

RESEARCH

Students who are interested in conducting research for academic credit take M.S. Thesis Research 03-700 or 02-700 for research with Biological Sciences faculty mentor or Computational Biology faculty mentor respectively.

- Up to 12 units of 02-700 or 03-700 may be counted toward the degree without written approval from the MSCB advising committee. Students may take more than 12 units of credit, but only 12 units will count toward graduation.
- Students may be eligible for “Research Honors”. With an honors thesis, students may count 24 units.

Typically, students contact faculty directly to learn about available research opportunities. To register for this class, please contact the Assistant Director who will assist with registration.

It is strongly advised that students wait until their second semester to begin research.

Some faculty members may be willing to pay research assistantships. You can receive either research credit or pay for research in a given semester, but not both.

Summer research in a lab requires you to either be paid (as a CMU employee) or to register for a course. Most students prefer to be employed, but if you want to get course credit for summer research, please ask the program advisors.

F-2 and J-1 students may work on the CMU campus part-time or full-time during vacation terms or any official school breaks, including summer. What that means is that summer research in a lab does not need CPT authorization. For more information, see: <https://www.cmu.edu/oie/foreign-students/employment.html>

INTERNSHIPS

Students often secure internships in industry or academia during the summer between the first and second years, and less often during the academic year. The internship must be relevant to computational biology. Students must contact the Assistant Director during late fall about planning for an internship.

To complete the required internship during this summer must register for three (tuition free) units of 03-601R, Computational Biology Internship. Students who complete an internship during the fall or spring semester should register for three (tuition charged) units of 03-601A, Computational Biology Internship. Students may also register for research to fill this requirement with the approval of the Assistant

Department Head for Careers and Professional Development, Computational Biology Department.

Students involved in paid on campus summer research for pay should register for 03-601-R as well. Before beginning any research, please discuss with Assistant Director.

Before registering for 03-601R or 03-601A, written approval must be obtained from the Assistant Department Head for Careers and Professional Development, Computational Biology Department who will ensure that the internship is relevant to computational biology and maintain contact with the internship supervisor.

INTERNATIONAL STUDENTS

International students who secure paid summer internships outside of Carnegie Mellon must also register for Curricular Practical Training (CPT) or Pre-Completion Optional Practical Training (OPT), both of which are overseen by the Office of International Education (OIE). International students are not eligible for CPT until the summer after their first full academic year. To receive either training authorization from OIE, the internship must be in computational biology. For CPT authorization, students must present the offer letter stating employment dates, work hours, and amount of wages or stipend for the internship. The Assistant Department Head for Careers and Professional Development, Computational Biology Department signs all CPT authorization requests and may deny a request if the internship is not relevant to computational biology. Note that whereas CPT authorization typically has a faster turnaround, OPT authorization is sought through OIE and can take up to 90 days to obtain. All international students **MUST** consult with OIE for eligibility (and in the case of CPT the Assistant Department Head for Careers and Professional Development, Computational Biology Department) before seeking an internship/co-op or signing an offer contract.

ENGLISH 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 institutions of higher education 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>. The fluency of all instructional personnel will be determined by each department. In addition to administering the International Teaching Assistant (ITA) Test (a mandatory screening test for any non-native speaker of English), the Intercultural Communication Center (ICC) helps teaching assistants who are non-native English speakers develop fluency and cultural understanding to teach successfully at Carnegie Mellon. Visit the ICC website for additional information: www.cmu.edu/icc.

Graduation, Honors, and Awards

RESEARCH OR PROFESSIONAL HONORS (INDUSTRY TRACK)

The directors of the MSCB program confer awards for academic achievement, research honors, professional honors, and outstanding leadership at graduation. Students maintaining a GPA of 4.0, or higher will receive an award for academic achievement. Students with substantial research accomplishments, such as a publication, will receive an award for research achievement. Students who have completed internships and received an endorsement from their internship supervisor may request professional honors. Students that make substantial contributions to the MSCB community, such as serving as a GSA representative or organizing social events will receive an award for leadership.

Research Honors and Professional Honors (Industry Track) signify that a student has excelled in their training for one of these two career paths.

If you are interested in completing a research-based thesis, you are required to (1) complete 12 or more units of independent research study with a faculty advisor (with MSCB Advising committee approval), (2) write and defend a master's thesis. If you satisfy the above requirements, you qualify for Research Excellence with Honors.

Full research honors requirements are outlined here (<https://www.cmu.edu/ms-compbio/current-students/forms-policies/research-thesis.html>). The final thesis should have the following sections:

- (1) Title page & Dedication/Acknowledgements
- (2) Abstract (1 page)
- (3) Introduction chapter (4 or more pages). Separate from introduction sections in other chapters, this is a place for the student to put the entire thesis in context.
- (4) 1 or more additional chapter (20 or more pages each). Chapter format should be consistent and may match the format of any journal article in the field of study.
- (5) Bibliography (pages are enumerated but do not count toward page total). This may be a standalone bibliography for the whole thesis or each chapter may have its own bibliography.

As an alternative to Research Excellence with Honors, students who complete two semesters or more of research with grades of A or higher can earn "Research Excellence".

If you complete an external internship (03-601, typically over the summer) and earn an A grade, you qualify for Professional Honors (Industry Track). NOTE: students who are eligible for multiple of these three awards ("Research Excellence", "Research Excellence with Honors", and "Professional Honors (Industry Track)") will have to choose one of those three awards to receive.

GRADUATION CEREMONIES

MSCB students are certified for graduation by the Department of Biological Sciences in the Mellon College of Science.

Carnegie Mellon University holds graduation ceremonies in May only. Because there are no August or December commencement ceremonies, we encourage students to participate in the May events.

Students who graduate in December should stay in contact with the Biological Sciences Graduate Programs Office for details.

There are two May graduation ceremonies that pertain to M.S. Computational Biology students. The Department of Biological Sciences Diploma Ceremony and Reception are usually held on the Friday morning before the university-wide Sunday Commencement. Students who have graduated the previous December, as well as those receiving their degrees in May or upcoming August, are eligible and strongly encouraged to participate.

The Carnegie Mellon University Commencement Ceremony is held on Sunday. Students who graduated in December, as well as those receiving their degrees in May or August, are eligible to participate.

Section 2. Resources

Academic Advising

ORIENTATION

There are two orientations for incoming graduate students. Both events take place in the weeks preceding the beginning of the fall semester.

- The University-wide orientation organized by the Office of Graduate & Postdoctoral Affairs Student introduces the students to university resources and services.
- The Program Orientation introduces them to faculty, research, administration, policies and services. The MSCB Steering Committee in collaboration with the Biological Sciences Graduate Programs Office and the Graduate Office of the Computational Biology Department arrange for students to receive the necessary information for enrollment, registration and timelines.

ADVISING FOR COURSEWORK

Before each semester, each student must share their plan for the coming semester with the MSCB Steering Committee. All changes must be approved by the Assistant Director.

ADVISING FOR PROFESSIONAL DEVELOPMENT

As part of 02-602, students will have opportunities to develop their professional skills during their first semester. In subsequent semesters, students are encouraged to meet with the Assistant Director for advising on further professional development.

MONITORING PROGRESS

Students who have specific concerns about their progress are urged to speak with the Assistant Director as early as possible. The Assistant Director along with members of the MSCB Steering Committee meet with the student at least twice a year, providing guidance and monitoring the student's overall progress. In addition, the Assistant Director meets with the student as and when needed to discuss progress and resolve issues.

NOTIFICATION AND CONSEQUENCES OF INADEQUATE PROGRESS TOWARD THE DEGREE

If the MSCB Steering Committee determines that the student is making inadequate progress, it will notify the student in writing of the deficiencies and the consequences of failing to correct those deficiencies. Any student whose QPA is at or below 2.0 after one term or 2.5 after two or more terms is placed on academic probation. The terms of the probation, including conditions to be taken off of the probationary status and consequences for not meeting terms of probation, depend on the individual cases and will be stated and spelled out in the letter placing the student on probation. The committee and the student will then formulate a plan to address those deficiencies, including milestones. Consequences of continued failure to make satisfactory progress or not being in good academic standing will be determined by the Steering Committee.

STUDENT RIGHTS IN ACADEMIC CONFLICTS

A student wishing to appeal a departmental disciplinary decision should first speak with the faculty member directly involved. A student who is uncomfortable approaching the faculty member may discuss the matter with the Director of Graduate Operations (Biological Sciences Graduate Programs Office) who serves as the Graduate Ombudsperson for Biological Sciences. If the conflict cannot be resolved on this level, the student is referred to the Program Co-Directors or the relevant Department Head(s) who may, with the student's permission, meet with both the student and the faculty member involved. The student may also continue to meet with the Director of Graduate Operations (Biological Sciences Graduate Programs Office) who serves as the Graduate Ombudsperson for Biological Sciences.

In cases where departmental assistance is not possible or not practical due to conflicts of interest or confidentiality concerns, please contact the MCS Ombudsman, directly to set up an appointment. Please be sure to refer to the university's summary of graduate student appeal and grievance procedures to determine if there is a specific procedure governing your situation.

Support Services

CAREER AND PROFESSIONAL DEVELOPMENT CENTER (CPDC)

The CPDC provides students access to campus job fairs and workshops on various topics. Also, on-site career consultants can help students with resumes and mock interviews. Students are encouraged to avail of these services via Tartan TRAK.

OFFICE OF INTERNATIONAL EDUCATION (OIE)

The OIE provides many important services to international students, including immigration advice and social and cultural issues. These services are explained during the University Graduate Student Orientation in August before the fall semester begins.

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 SUCCESS CENTER (SASC)

The SASC offers various opportunities for students to deepen their understanding as learners, communicators, and, ultimately, scholars. We support student success by providing academic coaching, communication consulting and workshops, accommodations and support for students with disabilities, and language support for English language learners. Our program offerings are free and open to all students. SASC also engages with faculty and staff to improve academic advisors' coordination and professional development.

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/>.

to attend seminars and workshops hosted by the ICC. This will prepare students seeking internships and jobs in the USA in fluent English Speech.

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS)

Graduate school is often a difficult and stressful time of life. Many MSBTPE students study far away from home and their previous support systems. We encourage students to use these confidential counseling services for additional support.

CaPS allows students to talk privately about personal, academic, or other concerns in a safe, confidential setting. All counseling center services are provided at no cost.

GRADUATE STUDENT ASSEMBLY (GSA)

The GSA is the branch of student government that represents all graduate students at Carnegie Mellon. MSBTPE students may elect their representative to the GSA. In addition to working with other student government members, university administration, and external advocacy groups, the GSA plans various social events throughout the year. Keep an eye out for emails from the Biological Sciences and Computational Biology departmental representatives with information about GSA events and initiatives.

CENTER FOR STUDENT DIVERSITY & INCLUSION

The center staff serves as a resource to assist historically underrepresented students and those who are the first in their families to attend college in navigating a return to campus after a leave, as well as connecting, developing, and achieving educational plans that are compatible with their life goals.

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 TAs 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 IT Support Consultant can provide hands-on technical support for computers, printers, and software. To place a service request to the IT Support Consultant, email bio-it-support@andrew.cmu.edu.

cmu.edu. For emergencies, call the IT Support Consultant directly at 8-1990.

THE HUB

The HUB provides a range of enrollment services. The Academic Calendar includes information on all deadlines, including registration dates, class start dates, add/drop deadlines, exam dates, and more. Information regarding forms, schedule of classes, online registration, graduation procedures, an official letter of enrollment, official transcript, and enrollment verification.

MELLON INSTITUTE MAILROOM AND GATES STUDENT LOUNGES

There are two (newly renovated) locations providing a comfortable space for MSCB students. MSCB students may use these spaces to spend time between classes, complete group projects, or just hang out.

- (1) Mellon Institute Mailroom located by the loading dock entrance on the 3rd floor (which is the ground floor)
- (2) The MS Student Office in the Computational Biology Department on the 7th floor of the Hillman Center for Future Generation Technologies.

HONORARY SOCIETIES

Graduate students are encouraged to belong to professional societies such as Phi Kappa Phi and Sigma Xi. They are nominated, if qualified, by either the Department of Biological Sciences or the Computational Biology. They are also urged to join the societies specific to their sub-discipline.

STUDENT ORGANIZATIONS

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

- Career Club

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

ASSISTANCE FOR INDIVIDUALS WITH DISABILITIES

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical and programmatic campus access to all events and information within the Carnegie Mellon community. We work to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Sections 503 and 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations can begin the process through Disability Resources secure online portal or email access@andrew.cmu.edu to begin the interactive accommodation process.

Students with disabilities are encouraged to self-identify with Equal Opportunity Services by contacting Catherine Getchell, 412-268-6121, getchell@cmu.edu to access the services available at the university and initiate a request for accommodations.

Compliance Issues

ENVIRONMENTAL HEALTH AND SAFETY TRAINING

Each MSBTPE graduate student must complete laboratory, chemical, and biological safety training presented by Environmental Health & Safety during the Department of Biological Sciences Orientation prior to beginning regular coursework. Students who work with or near radioactive substances must undergo radiation safety training.

SEXUAL HARASSMENT TRAINING

All graduate students are required to receive sexual harassment training, which is given in the fall semester or can be taken online www.cmu.edu/hr/learning/eLearning/SHA-training.html. The sexual harassment policy is available at www.cmu.edu/policies. To speak to a sexual harassment advisor, please contact the university's sexual harassment hotline at 412.268.7445.

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:

IACUC Education and Compliance Office - 412-383-2008 or iacuc@pitt.edu

Ethics

At all times, students are 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.

Section 3. Financial And Other Related Issues

TUITION AND FEES

Information about tuition and fees is available at www.cmu.edu/hub/tuition. All tuition and fees must be paid in full by the due date; a student not in good financial standing will be dismissed from the program. Any exception to this policy must be discussed with the Department Heads.

UNIVERSITY FINANCIAL AID

Graduate students should consult the graduate student financial aid information found on The HUB website: <https://www.cmu.edu/sfs/financial-aid/graduate/index.html>. Students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

Graduate students who find themselves in need of immediate funds for emergency situations should contact the Office of the Dean of Student Affairs (see Appendix A), www.cmu.edu/student-affairs/index.html, to inquire about an Emergency Student Loan.

HEALTH INSURANCE AND SERVICES

Carnegie Mellon has a Student Health Insurance policy requiring full-time, degree-seeking students to carry adequate medical insurance, unless you are enrolled as the dependent, partner/spouse or principal in an employer or government-sponsored insurance plan.

The university offers one level of health plan. It is the responsibility of each student to make arrangements with Student Health Services to either pay for their insurance at the beginning of the semester or elect a payment plan over the course of the academic year. Optional dental and vision insurance are also offered. More information is available at the Student Health Services website www.cmu.edu/health-services or by email to shinsure@andrew.cmu.edu.

The Student Health Services Center provides general and some specialized medical care at a discount or free of charge to all full-time Carnegie Mellon students. There are fees for laboratory tests and prescription drugs at the on-site pharmacy.

EMPLOYMENT DURING THE ACADEMIC YEAR

M.S. students are allowed to work for hourly wages at Carnegie Mellon, provided academic progress is not compromised. Paid research must be kept separate from projects done for tuition-based academic credit (M.S. Research 03-700 or 02-700).

For students who desire to earn wages, there are limited employment opportunities in faculty research groups. Students are responsible for seeking out such opportunities.

F-1 and J-1 students may work on the CMU campus 20 hours or fewer per week while

school is in session (during fall semester or spring semester). For more information, see: <https://www.cmu.edu/oie/foreign-students/employment.html>

It is strongly advised that students wait until their second semester to begin work on a research project. The number of hours worked should not exceed 12 hours per week. M.S. students are not usually eligible for teaching assistantships. However, M.S. students can work as a Teaching Assistant for an hourly wage. There are minimum English proficiency requirements. Please refer to Requirements for Teaching.

UNIVERSITY RESEARCH FUNDING

GuSH Research Funding is a source of small research grant funds provided by the Graduate Student Assembly (GSA) and the Provost's Office and managed by the Office of Graduate and Postdoctoral Affairs. Students can find more information about the application process and deadlines at <https://www.cmu.edu/graduate/professional-development/research-funding/index.html>

OUTSIDE FELLOWSHIPS

Students are encouraged to obtain their funding source through fellowships sponsored by the National Institutes of Health (NIH) or the National Science Foundation (NSF). The university's Fellowships and Scholarships Office (FSO) maintains a financial aid and fellowship database.

All applications must be submitted through the Business Manager's Office. The Business Manager must be notified before submitting the application and receiving a complete copy. 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.

FACILITIES AND EQUIPMENT

The Biological Sciences department owns and maintains equipment such as centrifuges and autoclaves for departmental members' use. Each graduate student engaged in wet lab research must be trained in properly using and maintaining this equipment. Logs must be signed, and any problems noted. Individual laboratories are liable for repair and replacement costs if their personnel misuse equipment.

CHANGE OF ADDRESS

Students are responsible for notifying the Department of Biological Sciences Business Office and HUB of all changes in a timely manner. Students will be held accountable for failing to receive official college

F-1 and J-1 students may work on the CMU campus 20 hours or fewer per week while school is in session (during fall semester or spring semester). For more information, see: <https://www.cmu.edu/oie/foreign-students/employment.html>

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