Joint Carnegie Mellon University-University of Pittsburgh

Ph.D. Program in Computational Biology

An HHMI-NIBIB Interfaces Initiative Program

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STUDENT AND FACULTY HANDBOOK

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Welcome and Introduction

Welcome to the Joint Carnegie Mellon University-University of Pittsburgh Ph.D. Program in Computational Biology (CPCB). Computational Biology is a field that encompasses a wide range of topics, ranging from molecular modeling and protein dynamics to large-scale analysis of genome/proteome data. This program brings together researchers from two leading research universities to provide a broad training program in this rapidly developing field.

The goal of this handbook is to provide as complete a description as possible for program students and faculty of each aspect of the program with a particular emphasis on the requirements and procedures involved. This handbook is updated on a yearly basis, but some information, particularly regarding individual courses, is subject to change. Please consult the program web site for the latest information and feel free to contact the program directors and coordinators about any questions, issues, or suggestions that you may have. We welcome your feedback and look forward to working with you!

Dr. James Faeder, Program Director
University of Pittsburgh

Dr. Carl Kingsford, Program Director
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1. Program Overview

The Joint CMU-Pitt Ph.D. Program in Computational Biology (CPCB) offers a Ph.D. in Computational Biology. Students receive their doctoral degree from either the University of Pittsburgh (Pitt) or Carnegie Mellon University (CMU), depending on the university at which the student's Dissertation Advisor holds their primary appointment. Within CMU, the administrative home for the program is the Computational Biology Department and degrees are awarded by the School of Computer Science. Within Pitt, the administrative home is the Department of Computational and Systems Biology, School of Medicine, and the degree-granting school is either the School of Medicine or the School of Arts and Sciences, depending on the primary affiliation of the student's Dissertation Advisor.

The goal of CPCB is to provide intensive interdisciplinary education to enable students to become leaders in identifying and solving tomorrow's biological problems using computational and/or mathematical methods and fundamental principles of life and physical sciences. CPCB provides students with cross-disciplinary training in established as well as newly emerging fields of computational biology. Through diversity, equity and inclusion, we strive to provide leadership and resources necessary to ensure that all members of the program are valued and respected within CPCB through collaboration, policies, and procedures.

CPCB has instituted a curriculum that is designed to train students who will shape the next generation of discovery in computational biology in academia and industry. The curriculum offers a set of core courses, which provide the students with fundamental concepts and methods in computational biology, and elective courses from one of four areas of specialization. There are also professional development activities, which include Seminar, Journal Club, Presentation Class, Ethics, and Writing, and MetaSchool. The areas of specialization are:

- **Computational Genomics**
- **Computational Structural Biology**
- **Cellular and Systems Modeling**
- **Bioimage Informatics**.

The core courses aim at providing students a strong common background in computational biology before they specialize in a particular research area. Students receive a rigorous introduction to the basic methods of computer science in Machine Learning. The core courses in Computational Genomics, Computational Structural Biology, and Cellular and Systems Modeling provide an overview of modern methods in Computational Biology. Students also learn advanced experimental methods for quantitative study and analysis of biological systems in Laboratory Methods for Computational Biologists. Three elective requirements allow students to acquire skills and knowledge that are most relevant to their research interests.

Students select an elective course from lists of approved courses under three different headings: Specialization, Life Sciences, and General. The Specialization Elective provides advanced interdisciplinary training in the student's chosen area of specialization. The Life Sciences electives are graduate-level courses that focus on specific topics in life sciences or a combination of life and physical sciences (e.g., Molecular Biology, Biophysics, and Cell Biology). The General elective includes courses that provide rigorous mathematical, computational, and statistical training (e.g., algorithms, statistical methods, and advanced machine learning).

A comprehensive examination is conducted between the fifth and seventh semester in the program. This examination entails the preparation of a Dissertation Proposal and an oral defense of this proposal to a committee comprised of program faculty and an external member. As they approach the end of their doctoral studies, students are mentored toward finding faculty or postdoctoral positions in academia, or positions in the biotechnology and pharmaceutical industries. The doctoral degree is awarded upon submission and oral defense of the Dissertation.

2. Program Administration

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3. Training Faculty

A current list of the training faculty and their interests can be found at http://www.compbio.cmu.edu/faculty-list/. An outstanding group of over 100 CPCB training faculty from diverse backgrounds and schools at the two universities provide ample opportunities for cutting edge thesis projects in well-funded research groups. The research interests of the faculty span a broad spectrum of computational biology fields, including computational genomics, computational structural biology, cell and systems biology and bioimage informatics. Research topics include mining of high-throughput genomic data in a systems biology framework, evolution of genomes, genetic variation analysis, protein-protein and protein-ligand interactions, protein folding, biomolecular machinery, computer-aided drug discovery, metabolic and regulatory cellular networks, protein localization from cell images, and many others.

Selection Criteria

A training faculty for the CBCB program must be a member of the graduate faculty of either CMU or Pitt and must do research that involves a significant component toward the development and/or application of computational methods for the analysis of biological data and the modeling of biological systems.

Process for Appointment and Removal

Training faculty members may be added by requesting membership in an email to the Program Directors that includes a current CV.

Training faculty members may be removed by request of the faculty member or decision of the Directors or Executive Committee.

4. Committees

To better provide rigorous training to our students, CPCB has established seven committees. Committee members can be found at: http://www.compbio.cmu.edu/people/committees/

Executive Committee

Responsibilities: The Executive Committee oversees the program and approves major changes to the program structure and policies. The Executive Committee ensures that the program is maintained within the general guidelines of the goals and objectives of both universities. The Executive Committee consists of the two Directors of the program, any Associate Directors, and up to eight Faculty members named by the senior administration of the two universities. It is composed of an equal number of Faculty members from Pitt and CMU, and within Pitt it includes members from the SOM and the School of Arts & Sciences. The committee is expected to meet at least annually, although additional meetings will occur as needed. In addition, issues not requiring face-to-face meeting will occasionally be discussed and/or decided via email or teleconference.

Admissions Committee

Responsibilities: The Admissions Committee is responsible for reviewing applications to the program. It consists of a total of 8 faculty members named by the Directors (4 from each university), including two chairs (one from each university). The committee will also include 8 student members (4 from each university). Faculty will normally serve on the Admissions Committee for a three-year term, and students for a one-year term. The committee will meet the second or third week in December and again twice in January. The committee may additionally be consulted for admissions-related questions or decisions outside the normal admissions season. Details on admissions policies and the role of the Admissions Committee in applying them are provided in the next section.

Curriculum Committee

Responsibilities: The Curriculum Committee is responsible for maintaining and revising program elective course menus and for making recommendations about curriculum modifications or additions to the program Directors and Associate Directors. The committee consists of 4 faculty members (2 from each university), including two chairs (one from each university). The committee will also include 2 student members (one from each university). The committee will meet at least twice per year prior to the beginning of the Fall and Spring terms (around the time that courses open for registration) to identify courses that qualify for each of the elective menus and to disseminate these lists to students and faculty.

Seminar Series Committee

Responsibilities: The Seminar Series Committee is responsible for selecting and organizing the Seminar Series speakers, with the aim of providing a slate of speakers representing diverse research areas and speaker backgrounds. This committee will meet at least twice per year during the first week of August and the first week of April to select candidate speakers for the following term.

Professional Development Committee

Responsibilities: The Professional Development Committee is responsible for organizing professional development activities for first through fourth year students, which include the Journal Club, Presentation Class, and MetaSchool.

Diversity and Inclusion Committee

Responsibilities: The CPCB Diversity and Inclusion (D&I) committee includes students and faculty from diverse backgrounds and seeks to ensure that all members of the CPCB program are valued, respected, and provided with resources to succeed. The committee acts as an interface between the student body and program leadership to ensure that any concerns regarding diversity, equity, and inclusion within the program are brought up to program leadership. The committee is not a replacement for university resources, and proper avenues should still be used when reporting discriminatory behavior.

Steering Committee

Responsibilities: The Steering Committee is comprised of the Directors and Associate Directors at both Universities, both program managers, and two committee appointed senior-level students (students are only eligible if they've successfully completed all program course requirements and proposed their thesis). The Steering Committee makes decisions specific to the CPCB Ph.D. program that do not require the attention of all the faculty and students.

5. Policy for Student Admissions

1. Review of applications will begin immediately after the final application deadline. The CMU and Pitt components of the committee may review applications separately or jointly. Admissions committee chairs will be responsible for assigning application to members of the committee for review. Every application must be reviewed and scored by a minimum of two committee with written comments provided in the online review system. The criteria for determining whether an applicant is qualified for the program and for determining the ranking of applications will be set in advance of any reviews taking place at the first committee meeting (or meetings, if held separately).
2. The committee (or subcommittees) will complete their initial review of all applications and hold a meeting to discuss and rank the applications by the end of the second week of January. The outcome of this process will be a list of qualified students with each categorized by a ranking that determines their priority for admission to the program. This list (or lists) will be provided to the program Directors and Associate Directors.
3. A joint meeting of the full Admissions Committee and the Directors and Associate Directors will then be held to review the selection and rankings and to make any necessary adjustments. During this meeting any participant may bring up for discussion any application for further consideration. Decisions made at this meeting regarding the qualification of applicants will be considered final.
4. The Directors and Associate Directors will then select candidates from the qualified list for interviews and admission through either CMU or Pitt, considering rankings and other factors including research interests, demographic balance, and recruit ability. All candidates for admission through Pitt will be interviewed, either remotely or in person, prior to making an offer of admission.
5. All students selected for admission will be invited to visit Pittsburgh for a program Open House.
6. For any students who are being considered for acceptance as transfer students from another Ph.D. program, a Transfer Student Checklist must be completed and signed by the admissions committee chairs, and the program Directors before an offer can be made.

6. Plan of Study and Requirements

Students are required to complete 72 credits/216 units of academic work towards partial fulfillment of the requirements for completion of Dissertation Study. Of these, a minimum of 27 credits/81 units must be fulfilled by formal coursework. This includes five core courses, one specialization elective, one life sciences elective, and one open elective. In addition, all students must complete an approved *Ethics* course, *Writing Workshop* and must attend the *CPCB Seminar Series* in the Fall and Spring. Starting in the Spring semester of their first year and through the Fall of their third-year students attend either Journal Club or Presentation Class (see below). The remaining credits/units will be completed with full time research. Waivers or temporary deferral of specific requirements may be possible, given a sound educational justification, through petition to the program Directors. Specific guidelines and requirements for MSTP students can be found here: http://www.compbio.cmu.edu/admissions/medical-scientist-training-program/

I. *Year One (Semester 1-3)*
A. Coursework
We anticipate two types of course schedules for students in the program. Students will normally be expected take three core courses (including lab methods which spans the first and second semester) in the first semester and conduct limited research (either directly with an advisor, or through rotations). In the second semester, they are normally expected to take three more courses (50-75% time), thus completing their core courses, and spend the remaining time on research. The subsequent semesters would be divided between taking electives and doing research.

In some cases, a student whose background is more limited in biology, computer science, or the physical sciences, may delay a core course for a year to pursue basic course work in one or more of these areas. Such basic courses will not normally count towards program requirements, unless the course is selected from approved courses of the CPCB curricular menus, or the student successfully petitions the Directors to allow the course to be counted in lieu of an existing degree requirement. Such a student will take a mix of core courses and other courses that will help them bridge this knowledge gap. These students will complete the remaining core courses and electives in the third and fourth semesters (along with a minimum of 50% research).

B. Directed Studies/Rotations
Students are required to do three research rotations with program faculty during their first semester unless they have direct matched to an advisor by the beginning of the first semester (minimum of 1 credit/3 units of Directed Study). During each rotation, the student and a faculty member will work together on research projects to determine whether there is mutual interest in the student joining the faculty member's group. When a suitable match hasn't been found after the three rotations, additional rotations will be approved for their second semester.

The duration of each research rotation will be at least four weeks, and it will give the student the opportunity to explore research projects in three different groups. At the end of the rotations, students will go through the student-advisor matching process (described in section 9). The precise start and end dates of the rotation periods will be set by the Directors and Associate Directors and announced to the students prior to the start of the fall term. Potential advisors may

be selected from amongst the rotation mentors or other faculty based on the student-faculty interactions (in program activities) during the rotations period.

Students who are not matched after completing three rotations in the Fall semester will perform additional rotations in the Spring semester. Unlike the Fall rotations which are scheduled in advance, Spring rotations, if needed, will be on a rolling basis with the goal of matching the student as soon as possible. Students who are not matched at the end of the Spring semester of their first year may be terminated from the program.

C. Training in Ethics
Ethical conduct and scientific integrity is an essential aspect of research. This is especially important given the competitive nature of funding processes and the high demand for productivity. Hence, the program aims to help students understand the significance and practice of ethical conduct. This will be accomplished as follows:

Students will be given copies of the relevant academic integrity and research integrity policies of both universities (*i.e.*, the *Guidelines on Academic Integrity* and the *Research Integrity Policy*.) CMU-specific policies can be found online at http://www.cmu.edu/academic-integrity/.

Students will be required to take an appropriate course in scientific ethics, which introduces ethical issues and ethical reasoning that arise when conducting or overseeing research. No specific course is specified, although *Scientific Ethics* (INTBP 2290) is commonly used for this purpose. Students may petition the advising committee to allow the use of any other class covering the essentials of scientific and research ethics for this purpose.

Students will complete any university-mandated education and certification program in research practice fundamentals.

D. Writing Course
The CPCB Writing Workshop is designed to introduce students to the basics of descriptive scientific writing, grantsmanship, the grant review process, and other related topics that will help them present their research and ideas in an impactful and persuasive way. This summer mini-course held in the second 4-week summer session is a required 1-credit, pass/fail course for CPCB students.

II. *Subsequent Years*

A. Coursework
Students who have completed all core courses in the first year will complete their coursework in the subsequent years by taking a total of three elective courses drawn from lists approved by the Curriculum Committee: one Life Sciences elective, one Specialization Elective (depending on the research field of the student) and one Open Elective (which may be drawn from any of the lists of electives). Students who have not completed the core courses will do that in the second year (together with taking additional elective courses.)

B. Directed Studies/Dissertation Research
After the first two semesters and prior to the successful completion of the Dissertation Proposal, students must be enrolled in a minimum of 4 credits/12 units of Directed Study in each semester.

After successful completion of the Dissertation Proposal Exam, students must be enrolled in a minimum of 6 credits/18 units of Dissertation Study in each semester.

III. Other Required Program Activities

A. Annual Program Retreat
An annual program retreat is held each year in the second half of August prior to the beginning of the Fall semester, and provides a forum for discussing research topics and socializing. New students can learn about research topics of faculty who are considering accepting students, helping them make more knowledgeable choices about rotations and potential advisors. All students are expected to attend each year.

B. Program Seminar Series
Students enrolled in the program will be expected to attend scientific seminars offered through the program seminar series during all years of training. This requirement may be waived at the discretion of the program Directors if there is a compelling research or educational justification, such as a conflicting class important to the student's research.

C. Professional Development
Effective presentation of scientific data is an invaluable aspect of graduate training. Therefore, from the Spring semester of their first year to the Fall semester of their third year, all participate in either Journal Club or Presentation Class. Each semester, each student will present a scientific article on a topic that introduces students to the methodology and applications of computational biology (Journal Club) or present a current research project (Presentation Class). The talk will be made in a format that allows students to develop their presentation skills.

IV. Program Curriculum Overview

The core courses aim to provide a strong background in computational biology before students specialize in particular research area, consistent with the goal of the program stated above. The core courses include

- An overview of the current state-of-the-art in **computational biology** (organized as three courses as Computational Genomics, Computational Structural Biology, and Cellular & Systems Modeling)
- **Theories and methods of computer science** (Machine Learning)
- **Laboratory Methods for Computational Biologists,** a course designed to convey a deep understanding of the types of experiments and instrumentation that generate data appropriate for computational analysis.

Students are expected to take the five core courses in the first year unless they are advised by the Advising committee to take additional courses before taking one or more core courses.

The core courses are listed below:

1, *Machine Learning* (CMU 10-701)

2. *Computational Genomics* (CMU 02-710 / Pitt MSC/CMPBIO 2070)

3. *Introduction to Computational Structural Biology* (Pitt MSC/CMPBIO 2030)

4. *Cellular and Systems Modeling* (CMU 02-730 / Pitt MSC/CMPBIO 2040)

5. *Laboratory Methods for Computational Biologists* (CMU 02-760 / Pitt MSC/CMPBIO 2050)

In addition to the five core courses, each student will be required to take at least **three graduate elective courses (i.e., at least 9 credit hours) drawn from a series of menus depending on the student's area of specialization.** At least 3 credits/9 units must be drawn from a specialization-specific menu of life sciences classes (**life sciences elective**), and 3 credits/9 units from a specialization-specific menu of advanced interdisciplinary classes (**specialization elective**) and 3 credits/9 units may be any graduate-level class in any of the other lists or approved by the Advising Committee (**general elective**). A list of elective courses approved for each menu can be found on the program website http://www.compbio.cmu.edu/curriculum/electives/. In most cases, each menu will be satisfied by a single course. Some menu options may offer less than 3 credits/9 units and need to be combined with others from the same menu to yield the required number of credits or units. Students should note that elective menus will evolve over time and that student input is an important part of this evolution; students may propose changes to any elective menu by making a request to the Curriculum Committee.

Students may petition to substitute an unapproved course for one of the menu classes provided there is a valid educational reason, and the chosen course fulfills the purpose of the elective slot for which it is used. Such a petition must be submitted in writing to the Directors prior to the start of the term in which the course is offered.

One elective must be a life science/physical science course, appropriate to the student's chosen area of specialization and selected from a menu of courses approved for that specialization. The program website lists an up to date set of courses that are approved for this elective.

One additional interdisciplinary elective course must be drawn from the student's area of specialization, to be selected in consultation with the Dissertation Advisor. The four areas of specialization are:

(a) Computational Genomics
(b) Computational Structural Biology
(c) Cellular and Systems Modeling, and
(d) Bioimage Informatics

Sample plan of study:

	Fall Semester	Spring Semester	Summer
Year 1	Machine Learning Core (4 credits/12 units) Comp Structural Biology Core (4 credits/12 units) Laboratory Methods for Computational Biologists Core (1 credits/3 units) Program Seminar Series (1 credits/3 units) Directed studies or research rotations (4 credits/12units) **Total: 14 credits/42 units**	Cell and Systems Modeling Core (4 credits/12 units) Computational Genomics Core (4 credits/12 units) Laboratory Methods for Computational Biologists Core (1 credits/3 units) Program Seminar Series (1 credits/3 units) Directed studies or research rotations (4 credits/12units) **Total: 14 credits/42 units**	Ethics (1 credits/3 units) Writing Workshop (1 credits/3 units) **Total: 2 credits/6 units**
Year 2	Elective course Journal Club (1 credits/3 units) Program Seminar Series (1 credits/3 units) Directed studies (4 credits/12 units) **Total: 14 credits/42 units**	Elective course Presentation Class (1 credits/3 units) Program Seminar Series (1 credits/3 units) Directed studies (4 credits/12 units) **Total: 14 credits/42 units**	Directed Studies or Dissertation Study (3 credits/9 units) **Total: 3 credits/9 units**
Year 3	Elective course Presentation Class (1 credits/3 units) Program Seminar Series (1 credits/3 units) Directed Studies or Dissertation Study (10 credits/32 units) **Total: 15 credits/45 units**	Program Seminar Series (1 credits/3 units) Directed Studies or Dissertation Study (14 credits/42 units) **Total: 15 credits/45 units**	Directed Studies or Dissertation Study (3 credits/9 units) **Total: 3 credits/9 units**
Year 4	Program Seminar Series (1 credits/3 units) Directed Studies or Dissertation Study (14 credits/42 units) **Total: 15 credits/45 units**	Program Seminar Series (1 credits/3 units) Dissertation Study (14 credits/42 units) **Total: 15 credits/45 units**	Dissertation Study (3 credits/9 units) **Total: 3 credits/9 units**
Year 5+	Program Seminar Series (1 credits/3 units) Dissertation Study (14 credits/42 units) **Total: 15 credits/45 units**	Program Seminar Series (1 credits/3 units) Dissertation Study (14 credits/42 units) **Total: 15 credits/45 units**	Dissertation Study (3 credits/9 units) **Total: 3 credits/9 units**

IV. Procedures for Dissertation Proposal Exam

Students are required to defend their Dissertation Proposal no later than the end of their seventh semester (Fall of fourth year) in the program. Petitions for extensions of this date must be submitted in writing to the program Directors no later than eight weeks before the end of their seventh semester in which the defense would normally occur. *Pitt students are strongly encouraged to form their thesis committee and defend their Dissertation Proposal by the end of their fifth semester* in order to accumulate the necessary number of Dissertation Study credits for timely graduation (see next section). Prior to defending their Dissertation Proposal students must have completed all core courses and be in good standing with the program. The completion of all core courses and the successful defense of the Dissertation Proposal is the *Comprehensive*

Examination for the CPCB students.

A. Dissertation Committee

The student together with their advisor(s) should decide upon the members of the Dissertation Committee, which should consist of at least four faculty members. At least three members must be from the program's training faculty and there must be at least one from the Pitt training faculty and at least one from the CMU training faculty. One of the committee members should be external to the program and – for CMU students – must be from another University. The Dissertation Advisor(s) is/are part of the Dissertation committee. One of the committee members is selected to serve as the Chair (at Pitt this needs to be different from the advisor, at CMU it is traditionally the advisor). The student is responsible for obtaining the agreement of all committee members that they are willing to serve and for finding a date and time that is suitable for the whole committee. The list of committee members and the defense date should be communicated to the program Directors no later than eight weeks prior to the date on which the exam is to be taken.

B. Written Dissertation Proposal

The student should prepare a written Dissertation Proposal and provide it to the Dissertation Committee no later than two weeks before the defense.

The Dissertation Proposal should consist of no more than 12 single-spaced pages with 1-inch margins. There is no limit on the number of pages used for references. The Dissertation Proposal should describe:

1. The background and significance of the proposed project.
2. The overall goal and specific aims to be accomplished.
3. The methods and approaches to be used.
4. The preliminary results that have been obtained to support the feasibility of the project.
5. The way in which the results obtained will be evaluated.

Note that previous work by others (including by anyone within the advisor(s)'s group(s) other than the student defending) should be included in the background and significance section, not in the preliminary results section.

C. Dissertation Proposal Exam

The student should give an oral presentation of the proposal lasting no more than 45 minutes (not counting time for questions.) This presentation is not public but is open only to students and faculty of the Program and members of their research groups. Following the presentation, the Dissertation Committee will question the student on the proposed work and any related material to determine whether the proposed work is suitable for a Ph.D. Dissertation and whether the student is adequately prepared to engage in the proposed research.

At the conclusion of the exam, the committee shall determine whether the student has passed, failed, or conditionally passed and, if conditionally passed, what conditions the student must meet to pass. The committee shall communicate this result to the program Directors and communicate to them when the conditions on passing, if any, have been met. This will be done using the appropriate form(s) for each university. It is the responsibility of the student, with the

assistance of the program coordinators, to ensure that all necessary forms have been filled and signed by the committee members and submitted on time to the program Directors and coordinators.

A student may retake the Dissertation Proposal exam no more than once.

V. *Admission to Ph.D. Candidacy*

Admission to Ph.D. Candidacy constitutes a promotion of the student to the most advanced stage of graduate study and provides formal approval to devote essentially exclusive attention to the research and the writing of the dissertation. To qualify for admission to candidacy, students must be in full graduate status, have completed core course work with a minimum GPA of 3.00, have passed the Dissertation Proposal exam.

VI. *Dissertation Study*

A. Dissertation Committee
The Dissertation Committee shall consist of at least four members: the advisor(s), two faculty members from within the Program (at least one from each University), and one faculty member outside of the Program. Pitt students must have an absolute majority of committee members (>50%) from the University of Pittsburgh. Members of the Dissertation Committee may be the same as from the Dissertation Proposal exam; however, the student and mentor are given the option of selecting an entirely new committee. The composition of the Dissertation Committee may change over time for various reasons.

Changes to the Dissertation Committee may be made at any time prior to the Dissertation defense with approval of the Dissertation Advisor and the Directors.

B. Requirements
Dissertation Studies Credits
Students who have been accepted to Ph.D. candidacy will conduct research on a full-time basis. Specifically, Pitt students are required to complete a minimum of 40 credits/120 units (9 credits/27 units per semester) of full-time Dissertation Study to meet the criteria for Dissertation Defense. Students starting their Dissertation Studies in the Spring semester of Year 2 can potentially finish their doctoral studies in four years.

Yearly Committee Meetings
The Dissertation Committee shall provide mentorship and support for the student while critically evaluating the progress of the Dissertation project. To accomplish this objective, may meet with their Dissertation Committee when needed. *For Pitt students, the candidate will be required to meet at least once per year with their Dissertation Committee.* The procedure for these meetings is described in the section on Advising and Evaluation.

Approval of Dissertation Outline
When appropriate, the Ph.D. candidate is required to provide their Dissertation Committee with an outline of their written Dissertation. The committee must approve this outline for the candidate to begin the writing and scheduling process for their Dissertation Defense in the coming months (typically within 6 months).

C. Written Dissertation

Each student must write a Dissertation that presents the results of a research project carried out by the student. An appropriate research project involves a substantive piece of original and independent research grounded in an appropriate body of literature. It is relevant to an identifiable field as it is currently practiced. It provides a significant contribution or advancement in that field. It is the responsibility of the student's Dissertation Committee to evaluate the Dissertation in these terms and to recommend the awarding of the doctoral degree only if the Dissertation is judged to demonstrate these qualities.

Characteristics that a Dissertation should demonstrate are:
1. The establishment of a historical context for the presentation of an innovative and creative approach to the problem analysis and solution.
2. A clear understanding of the problem area as revealed by analysis and synthesis of a broad literature base.
3. A well-defined research design.
4. Clarity in composition and careful documentation.
5. Results of sufficient merit to be published in refereed journals or to form the basis of a book or monograph.
6. Sufficient detail so that other scholars can build on it in subsequent work.

If the Dissertation is the result of a collaborative research effort, the project should be structured in such a way that the student's Dissertation results from at least one clearly identified piece of work in which the student has supplied the unquestionably major effort. The contributions of the student and the other collaborators must be clearly identified.

Published articles authored by the student and based on research conducted for the Dissertation study may be included in the Dissertation, if permitted by the policies of the student's school. In any case, the published work must be logically connected and integrated into the Dissertation in a coherent manner, and sufficient detail must be presented to satisfy the characteristics of a Dissertation. The student should be the sole or primary author of the published work. If the published articles were coauthored, the contribution of the student must be clearly delineated in the introduction so the committee can ascertain that the student's own work satisfies the requirements of a Dissertation.

F. Dissertation Defense

Ph.D. candidates must communicate their written Dissertation to their Dissertation Committee at least two weeks prior to their Dissertation Defense date. If the Dissertation is not submitted to the Committee on time the Dissertation Defense may be postponed.

The Dissertation Defense is conducted by the Dissertation Committee and open to the public. Although the committee may optionally elect for a closed defense, any member of the CPCB Training Faculty may attend and participate in the examination. The date, place, and time of the examination should be published well in advance. Other qualified individuals may be invited by the committee to participate in the examination. Only members of the Dissertation Committee may be present during the final deliberations and may vote on the passing of the candidate. A report of this examination, signed by all the members of the Dissertation Committee, must be sent to the Program Directors. If the decision of the committee is not unanimous, the case is referred to the Directors for resolution. The chair of the Dissertation Committee should ensure

that the written Dissertation is in final form before requesting signatures of the members of the committee.

G. Completion of Degree

A goal of the Program is that students finish their degree within 4 years of beginning thesis research (post Dissertation Proposal). However, it is recognized that achieving this goal is dependent on the specific type of research undertaken. In all cases, the degree must be completed within the timeline allowed by the PhD Statute of Limitations of the university at which the student is registered. For CMU, the relevant policy is available at:

https://www.cmu.edu/policies/student-and-student-life/doctoral-student-status.html

For the University of Pittsburgh, the relevant policies are available at:

https://catalog.upp.pitt.edu/content.php?catoid=136&navoid=11853#general-regulations-

7. Academic Policies and Procedures

A. Course Grade and GPA Requirements

All required core courses must be completed with a grade of B or better, with the sole exception of Machine Learning. Students receiving a grade of B- in Machine Learning will be considered to have met the requirement upon completion of a remedial project under the supervision of their Dissertation Advisor. Alternatively, a B grade or higher in any graduate class offered by the Machine Learning Department at CMU would also be considered as satisfying the requirement. For the elective courses the minimum course grade requirement is B-. Students are required to repeat any core course that they have completed with a grade less than the required minimum, preferably at the next offering of the course.

Students who do not achieve the required minimum grade in a required course, who elect to take an incomplete in a required course, or whose cumulative grade point average is below 3.0, will be placed on academic probation. Students on probation are not eligible to defend their Dissertation Proposal, or to graduate. If a student fails an elective course, she or he will need to repeat the same or take a substitute course (equivalent course approved/recommended by the student's advisor).

All grades count towards the GPA, except for repeated courses, in which case the final grade replaces the previous grade.

Students should otherwise refer to the grading policy of the university at which they took a given class, which supersede CPCB policies. For CMU, these policies are found here:

https://www.cmu.edu/policies/student-and-student-life/grading.html

For the University of Pittsburgh, these policies can be found here:

https://catalog.upp.pitt.edu/content.php?catoid=136&navoid=11853#general-regulations-

B. Full-time/Part-time Status

CPCB students are normally expected to maintain full-time status according to the rules of the university at which they are registered. Exceptions require petition to the Directors and approval of the Dean of the academic unit at which the student has registered except where otherwise noted. Relevant policies for the two universities are found here:

http://www.cmu.edu/policies/student-and-student-life/doctoral-student-status.html
http://www.registrar.pitt.edu/enrollment.html

8. Advising and Evaluation

A. Policy on matching of students and advisors

Prior to admission, applicants may express their interest in being advised by any member of the training faculty and faculty members may express a desire to advise a given applicant. Faculty members, however, may not provide opinions to applicants on likelihood of admission. A student may select an advisor from either university, subject to approval by the Directors, regardless of the university to which they are enrolled. Advisor matching for each student will follow the procedure of the university in which the student is enrolled, as outlined below. In the event matching is to an advisor at the university at which the student is not registered, registration will be transferred as of the start of the next academic term.

Students admitted into the program may express interest in being advised by any member of the training faculty, and faculty may express their interest in advising any accepted student.
Accepted students may therefore receive one or more letters from potential advisors to welcome them into the program and to possibly invite them to join their research group or, to offer them the opportunity to do a rotation in the advisor's group. Such welcome letters are strongly encouraged any time after the admission decision and before the start of the program rotations. Faculty members must acknowledge their acceptance of program policies (including financial responsibility) and obtain written approval from the Directors prior to extending an invitation to a student to join their research group. Invitations to do rotations do not require prior approval.

Students who have accepted admission may choose to accept an invitation to join a specific research group any time prior to the beginning of the Fall term. A student accepting such an invitation will not be required to do rotations.

Alternatively, a student may choose to do up to three rotations of at least four weeks each in the Fall term and with permission, additional rotations in the Spring term according to the schedule arranged by the Directors. In this case, students should provide the Directors with a ranked list of rotation choices (noting if any of these have already offered a rotation) by 5:00 pm on the Monday after the Fall Retreat and faculty must provide the Directors with a ranked list of students that they are willing to supervise for rotations (noting to which they have already offered a rotation) by the same deadline. The Directors will create a schedule based on these lists and inform students and faculty. The order of the rotations will be determined as needed to accommodate schedules.

If a student chooses to do rotations, matching of that student to advisors will be performed only after all the planned rotations have been completed. At the end of the third rotation period, each student will provide the Directors with a list of advisors with whom they would like to work (ranked in order of preference). In parallel, faculty will provide the Directors with a list of students (ranked in order of preference) whom they are willing to advise and the total number of students whom they wish to support. Potential advisors may not make a direct offer to a student but should rather communicate to the Directors how many (total maximum number) and which students they are willing to advise and any preferences among these students. The Directors and Associate Directors will then match students and advisors and inform each student of the advisor to whom they have been assigned. In unusual cases, additional rotations may be done after this matching process on a rolling basis.

Each student must accept an advising offer or be assigned to an advisor by the end of the Spring semester of their first year. Failure to secure an advisor by this time is grounds for dismissal from the program, although the Directors may grant extensions as circumstances warrant. Students will be transferred before the beginning of the Fall semester of the 2nd year to the university of the assigned advisor, if they are not already enrolled in that university. Students will be transferred for the Spring semester of the 1st year if that proves possible.

It is recognized that there may be circumstances in which it is appropriate for a student to change Dissertation Advisors. The process for advisor changing is detailed in Section 10 of this handbook.

It is also possible for a student to have two advisors. These may be co-advisors, when the student will be working on a project jointly conducted and supported by two faculty members. Alternatively, one faculty member who will assume scientific and financial responsibility may serve as the primary advisor, and a second as the secondary advisor. The student will be enrolled in the University of his/her primary advisor.

B. Advisor Responsibilities
The primary Dissertation Advisor(s) of a student will serve as the student's academic advisor and will guide the student through the execution of his/her Dissertation project. In addition to monitoring the student's progress, the academic advisor will also serve as faculty contact for the student if significant problems arise. Where appropriate, a co-advisor from a complementary discipline (e.g., a primary mentor in computational work and secondary in wet lab experimental work) may be selected to promote interdisciplinary collaboration and training or two advisors may jointly advise a student.

C. Policy on Monitoring of Student Progress and Termination of Advising Relationship
The progress of each student towards completion of the program requirements will be recorded in a student progress-tracking database.

Each student will be evaluated by the entire program faculty during a faculty meeting at the end of the Fall and Spring semesters, and the results of this evaluation will be communicated to each student in the form of a letter from the Directors on behalf of the entire faculty.

Each advisor will submit a written evaluation of the student's progress and an overall recommendation (*satisfactory*, *unsatisfactory*), listing any significant accomplishments and/or deficits, in advance of the evaluation meeting. This evaluation is independent of the student's academic performance. Prior to the meeting, the program coordinators, in consultation with the Directors and the advising committee, should evaluate student academic progress and determine whether the student should be placed on academic probation (see Academic Policies and Procedures.) Students who are found by the program faculty to have made Unsatisfactory Progress shall receive written notice of this finding, including a list of measures that need to be taken in the next semester to be considered to have made Satisfactory Progress upon the next evaluation. A student found to have made Unsatisfactory Progress for two or more consecutive

semesters can be terminated from the program. Thus, the earliest time that a faculty advising relationship may be terminated (other than by withdrawal of the student from the program or change of advisor), is at the end of the second consecutive semester in which the student has made Unsatisfactory Progress.

Advisors may not terminate their advising relationship, nor communicate to the advisee their desire to terminate their advising relationship, until the procedures described above have been followed.

While complying with the above procedures, advisors are encouraged to communicate to the students their personal progress evaluations, suggestions for future directions, and measures to be taken to remedy any deficits. At the discretion of the advisor, copies of such communications may be provided to the program Directors for placement in the student file.

After successful completion of the Dissertation Proposal Exam, the primary responsibility for monitoring of student progress falls upon the Dissertation Committee. As described above, the committee shall meet with the student at least once per year, and more often if desired or needed. Prior to the meeting, the student shall prepare a written report briefly outlining the goals of the project, summarizing cumulative progress to date, and detailing progress since the last committee meeting. The committee shall prepare a written report evaluating progress and/or fill in and sign the appropriate forms, copies of which shall be sent to the student, the Dissertation Advisor(s), the Directors and the program coordinators. The report shall clearly indicate whether progress is Satisfactory or Unsatisfactory, and if Unsatisfactory, shall describe those measures that need to be taken in the next semester to be considered to have made Satisfactory Progress upon the next evaluation. While a student is making Unsatisfactory Progress, committee meetings must take place at least once per semester. It is the program policy to have a penultimate Dissertation Committee meeting with the student, where the Committee determines whether a thesis is ready for defense.

For students who have successfully completed their Dissertation Proposal Exam, the most recent Dissertation Committee meeting report may be substituted for the written evaluation by the advisor. The progress of these students will be discussed by the faculty and an evaluation letter will be provided from the whole faculty.

9. Policy and Procedures for Changing Advisors

Graduate students have the right to change advisors during the course of their graduate studies. As a switch of advisors can have significant implications for both the student and advisor, this decision should not be taken lightly. Moreover, it is generally preferable if a switch occurs early in the graduate student's studies rather than later. A student considering a switch in advisors should go through the following steps in order to carry out this process:

1. Seek consultation and advice with the Program Director from their university. The Program Director will work with the student to identify prospective advisors. As with any other private meeting between a student and a Director (or Associate Director), all matters discussed at this meeting will be held in confidence unless the student directs otherwise.

2. Meet with prospective advisors to determine whether they would be willing to take over advising the student. When requesting such meetings, the student should let faculty know that they are considering switching advisors and whether the change in advisor and other details of the meeting should remain confidential.

3. Once a willing advisor has been identified, the current advisor should be notified (either by the student or the Program Director depending on the wishes of the student) and work in consultation with the Program Director to develop a transition plan for the student.

4. The current advisor, prospective advisor, and Program Director should meet to finalize the transition plan. In case a dispute about any aspect of this plan cannot be resolved by the parties, the case may be referred to the relevant university dean.

Students are considering or exploring an advisor change are expected to continue with their class and research work as usual. Advisors are not permitted to terminate their advising relationship with a student based on the student's considering an advisor change or to otherwise penalize a student for considering such a change.

When a student changes from an advisor at one university to an advisor at the other university, they will be granted a transfer to the university of the new advisor. This will take place at the earliest opportunity, but typically not until the beginning of the next semester.

10. Conduct, Honor and Integrity Policies and Procedures

Guidelines on Academic Integrity
These guidelines contain a set of principles that shall be applicable to each of the academic units throughout the Universities. A student desiring information about the program's specific procedures and makeup of its academic integrity hearing board may obtain a copy of the procedures and other necessary information from the program Directors. Additional information or guidance may be obtained from the Offices of the Provosts. It is also available at the following web address:

http://www.provost.pitt.edu/faculty/academic-integrity-freedom/academic-integrity-guidelines

http://www.cmu.edu/policies/documents/Academic%20Integrity.html

Guidelines for Ethical Practice in Research
Guidelines for Ethical Practice in Research can be found at the following web addresses:

https://www.cmu.edu/research-compliance/responsible-conduct/index.html

http://www.pitt.edu/~provost/ethresearch.html
GUIDELINES FOR ETHICAL PRACTICES IN RESEARCH-FINALrevised2-March 2011 (11).pdf

Research Integrity Policy
These guidelines cover policies for reporting research findings and data collection, to name a few. Policies for Research Integrity can be found at the following web addresses:

https://www.cmu.edu/research-compliance/index.html/

https://www.orp.pitt.edu/research-integrity

11. Outside Employment/Internships

Standards and expectations for internship work vary considerably from discipline to discipline, even within computational biology. Program requirements are intended to accommodate the expectations of each student's discipline. Students therefore may, with the approval of the thesis advisor and program Directors, pursue summer internships after the first year. It is the responsibility of the student and the advisor to ensure in such cases that the internship is consistent with the student's educational goals and does not compromise any intellectual property of the advisor or of the student's Dissertation work. Students are expected to maintain full-time student status during the academic year.

Policy on Internships

External internships for CPCB students are permitted but must be conducted within the guidelines of University at which the student is registered.

Students will need to secure advance permission of their Dissertation Advisor and the Program Directors after providing them with a written description of the planned internship project and host environment. The intern will then register for three units of credit under course 02-801 (Computational Biology Internship) or 1 credit under course MSCBIO/CMPBIO 2085 and will need to provide a post-internship written description of the work accomplished for approval by the Dissertation Advisor or the 02-801 or MSCBIO/CMPBIO 2085 instructor of record to receive credit for the internship experience. For students enrolled at CMU, credits will apply towards an overall degree requirement of 120 units of research credit in either 02-900 (PhD Thesis Research) or 02-801.

International students must consult with the Office of International Education for the University at which they are registered before seeking an internship/co-op or signing an offer letter. International students should additionally consult with their Program Coordinator 60-90 days in advance of the start of the internship to ensure that they have the proper immigration status during their internship.

Students are expected to maintain full-time student status during the academic year and so internships are therefore normally prohibited during the academic year.

12. TA Requirement

All students in the program are required to act as a teaching assistant (TA) for at least one semester during the program, typically during the second year of their studies. Students enrolled through Carnegie Mellon University are required to serve as TA for two courses. TA's will work closely with the faculty member teaching the course they will be assisting in. This requirement is not graded but is marked as complete or incomplete. Students, advisors, and instructors may make requests for students to be assigned to particular courses, but final TA assignments will be made by the Directors and Associate Directors based on a balance of these preferences, program and departmental needs, and student capabilities.

Evaluation and Certification of English Fluency for Instructors

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.

For students teaching in classes offered by CMU, the full university policy can be reviewed at: www.cmu.edu/policies/documents/EngFluency.html. For students teaching in classes offered by Pitt, the university policy can be found at: http://www.cfo.pitt.edu/policies/policy/02/02-02-16.html. For students teaching in classes offered by CMU, the university policy can be found at: https://www.cmu.edu/icc/. The fluency of all instructional personnel will be determined by CPCB through assessment of each student by the CMU Intercultural Communications Center (ICC) or the English Language Institute at Pitt. Each student's teaching assignments must meet the conditions set out by the ICC and ELI, which may include required remediation policies or limits on the type of instruction a given student may undertake.

ITA Requirement
Before serving as a TA, all non-native English speaking (NNES) students must satisfactorily pass the ITA test to ensure that their command of English is adequate for serving as an instructor. Details about the ITA test requirement can be found here:

http://www.cmu.edu/icc/testing/ITA/who_needs.shtml

https://www.as.pitt.edu/certification-english-fluency-faculty-and-tatfs

The Program Coordinators will oversee the process of ensuring that all NNES students are ITA-certified by the end of their first year. Depending on the outcome of the test, a student may be required to take additional training in English, be required to retake the ITA test, and/or be restricted with regard to his or her allowed TA assignments. The specific requirements or restrictions will be provided with the results of the test.

13. Financial Awards

When a student applies for the program, his or her application is considered to be an application for financial aid as well. All enrolled students receive full financial support, consisting of full tuition and stipend. The stipend is set to provide a competitive level of support for our students. Students are assumed to be responsible for any university fees that are not explicitly waived or covered by their departments of registration and may be responsible for paying for required health insurance, per the policies of the university at which they are registered.

Continued receipt of financial support is conditional on making satisfactory progress towards the Ph.D. The process of evaluation of progress is described elsewhere in this handbook.

14. Health Insurance

All Program students are offered health insurance through the university in which they are enrolled. Specific information regarding health insurance is provided at the following websites:

http://www.cmu.edu/health-services/student-insurance/index.html

http://issuu.com/universityofpittsburgh-ohr/docs/hr_student-healthcare?e=29275810/52945310

15. Leave of Absence

Under special conditions, graduate students may request one leave of absence (LOA) for a maximum of two years. The rationale for the leave of absence and anticipated length must be stated in advance, and the procedures for requesting a leave of absence and from returning from such leave specified by the student's university shall be followed. In several cases students returning from a LOA would be placed on a N-1 status for the first semester following their return.

For CMU Students: https://www.cmu.edu/policies/student-and-student-life/student-leave.html

For Pitt Students: https://catalog.upp.pitt.edu/content.php?catoid=136&navoid=14378

16. International Students

A. Offices for International Students
International students make up a large percentage of graduate students at both universities. Each university has an office whose purpose is to assist international students. They are:

University of Pittsburgh's Office of International Services
http://www.ois.pitt.edu/

Carnegie Mellon University's Office of International Education
https://www.cmu.edu/oie/

17. Grievance policy

Students may at times encounter situations where they believe they have been treated unfairly or out of accordance with the program rules. We encourage students to raise such concerns with their advisors, the advising committee or the program Directors when possible. When an issue cannot be resolved informally, students have the right to pursue a formal grievance process. This process will be carried out in accordance with the rules of the university at which the student is registered. Students can access the current grievance policies of the two universities in the corresponding University's web pages.

18. Transitional period rules

Over time, new program rules may be introduced or old rules modified. Unless stated otherwise, the students already enrolled at the time of a rule change are allowed to choose to follow the new guidelines or the guidelines that were in effect at the time of their enrollment. Below is a list of major changes that post-date the enrollment of at least some current students.

1. Number of elective courses

In November 2008 the Executive Committee decided to reduce the number of the open elective courses from two (2) to one (1) to accommodate the introduction of the rotation/research course in the first and second semesters. In January 2017 the Executive Committee decided to further reduce the number of elective courses required by removing the quantitative elective requirement. This rule can also apply to students who entered the program prior to 2017.

2. Number of elective courses.

The elective course requirements of the CPCB initially stated that four elective courses (specialization elective, quantitative elective, life sciences elective, and open elective) were required. In January 2017, the Executive Committee eliminated the quantitative elective requirement.

19. Additional University-Specific Policies and Assurances

Carnegie Mellon University Statement of Assurance

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the vice president for campus affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Obtain general information about Carnegie Mellon University by calling 412-268-2000.

The Statement of Assurance can also be found on-line at:
http://www.cmu.edu/policies/documents/SoA.html

The Carnegie Mellon Code

Students at Carnegie Mellon, because they are members of an academic community dedicated to the achievement of excellence, are expected to meet the highest standards of personal, ethical and moral conduct possible.

These standards require personal integrity, a commitment to honesty without compromise, as well as truth without equivocation and a willingness to place the good of the community above the good of the self. Obligations once undertaken must be met, commitments kept.

As members of the Carnegie Mellon community, individuals are expected to uphold the standards of the community in addition to holding others accountable for said standards. It is rare that the life of a student in an academic community can be so private that it will not affect the community as a whole or that the above standards do not apply.

The discovery, advancement and communication of knowledge are not possible without a commitment to these standards. Creativity cannot exist without acknowledgment of the creativity of others. New knowledge cannot be developed without credit for prior knowledge. Without the ability to trust that these principles will be observed, an academic community cannot exist.

The commitment of its faculty, staff and students to these standards contributes to the high respect in which the Carnegie Mellon degree is held. Students must not destroy that respect by their failure to meet these standards. Students who cannot meet them should voluntarily withdraw from the university.

The Carnegie Mellon Code can also be found on-line at:
http://www.cmu.edu/student-affairs/theword/code.html.

Carnegie Mellon Time-to-Degree

As outlined in the Doctoral Student Status Policy, https://www.cmu.edu/policies/student-and-student-life/doctoral-student-status.html, students will complete all requirements for the Ph.D. degree within a maximum of ten years from original matriculation as a doctoral student, or less if required by a more restrictive department or college policy. Once this time-to-degree limit has lapsed, the person may resume work towards a doctoral degree only if newly admitted to a currently offered doctoral degree program under criteria determined by that program.

Under extraordinary circumstances, such as leave of absence, military or public service, family or parental leave, or temporary disability, a school or college may, upon the relevant department's recommendation and with the written approval of the dean, defer the lapse of All But Dissertation status for a period commensurate with the duration of that interruption.
Students, who are pursuing the Ph.D. degree as part-time students for all semesters of their program, as approved by their program, may also appeal to their program or department for extension of the time to degree limit.

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 must submit a Voluntary Disclosure of Disability Form to access@andrew.cmu.edu to begin the interactive accommodation process.

For more information please see http://www.cmu.edu/hr/eos/disability/index.html. Students with disabilities are encouraged to self-identify with Equal Opportunity Services by contacting Larry Powell, 412-268-2013, lpowell@andrew.cmu.edu to access the services available at the university and initiate a request for accommodations.

Safeguarding Educational Equity

Policy Against Sexual Harassment and Sexual Assault

Sexual harassment and sexual assault are prohibited by CMU, as is retaliation for having brought forward a concern or allegation in good faith. The policy can be viewed in its entirety at: http://www.cmu.edu/policies/documents/SA_SH.html. If you believe you have been the victim of sexual harassment or sexual assault, you are encouraged to make contact with any of the following resources:
- Office of Title IX Initiatives, http://www.cmu.edu/title-ix/, 412-268-7125
- Sexual Harassment Advisors, found in appendix A of the Policy Against Sexual Harassment and Sexual Assault;
- Survivor Support Network, found in appendix B of the Policy Against Sexual Harassment and Sexual Assault;
- Sexual Harassment Process and Title IX Coordinators, found in section II of the Policy Against Sexual Harassment and Sexual Assault;
- University Police, 412-268-2323

- University Health Services, 412-268-2157
- Counseling & Psychological Services, 412-268-2922

Parental Accommodation Guidelines

Students whose anticipated delivery date is during the course of the semester may consider taking time away from their coursework and/or research responsibilities. All female students who give birth to a child while engaged in coursework or research are eligible to take either a short-term absence or formal leave of absence. Students in course work should consider either working with their course instructor to receive incomplete grades or electing to drop to part-time status or to take a semester leave of absence. Students engaged in research must work with their faculty to develop plans for the research for the time they are away.

Students are encouraged to consult with relevant university faculty and staff as soon as possible as they begin making plans regarding time away. Students must contact the Office of the Dean of Student Affairs to register for Maternity Accommodations. Students will complete an information form and meet with a member of the Dean's Office staff to determine resources and procedures appropriate for the individual student. Planning for the student's discussion with her academic contact(s) (advisor, associate dean, etc.) will be reviewed during this meeting.

University of Pittsburgh Policy:
[Resources for Pregnant and Parenting Students | Graduate Studies (pitt.edu)](#)

Enrollment Verification

Official letters of enrollment, official transcripts, and enrollment verification must be requested through the appropriate office at each university. For CMU, Enrollment Services is the only University office that can provide official letters of enrollment, enrollment transcripts, and enrollment verification. More information for both universities is available here:

http://www.cmu.edu/hub/transcripts/verifications/enrollment.html
http://www.registrar.pitt.edu/transcripts.html

Vacation Policy

Students receiving full financial support from their department are expected to continue research during all academic breaks, including summer, with the exception of official University holidays. Students who wish to take limited additional time off, of no more than two weeks, must seek prior approval from their advisors. Extended leaves of more than two weeks require prior approval of the Program Directors. International students are also required to consult with the Office of International Education before planning any extended leave to ensure they are compliant with requirements of their visas and U.S. immigration law.

https://www.gradstudies.pitt.edu/about/guidelines-policies-resources
https://www.gradstudies.pitt.edu/sites/default/files/assets/GSRAcademicRegs6-1-22.pdf

All But Dissertation/Absentia Status

Availability and implications of all but Dissertation (ABD) and absentia (ABS) status will be governed by the rules of the university at which a given student is registered. The relevant policies for CMU can be found here:

https://www.cmu.edu/hub/registrar/registration/abd.html

FTDS

Any full-time Pitt GSR who has completed all credit requirements for the doctoral degree, including any minimum Dissertation Studies credit requirements (40 Dissertation Study credits), and is working full time on a Dissertation may register for Full Time Dissertation Study (FTDS).

The relevant policies for the University of Pittsburgh can be found here (see sections "Registering for Full-Time Dissertation Study" and "Statute of Limitations/Leaves of Absence":

http://www.bulletins.pitt.edu/archive/2011/graduate/regulations2.htm

Terminal Master's Degree

The Program does not admit students whose goal is to attain a Master of Science (M.S.) degree. However, it might become necessary for a Ph.D. student to transfer to a M.S. track for a variety of reasons. These could include academic performance factors and factors beyond the student's control. The requirements and procedures for the transfer from the Ph.D. program to a terminal Master's degree are described below. Students must follow the rules of the University at which they are registered prior to the transfer.

The student must petition to be transferred to a terminal Master's degree. The petition must be addressed in writing to the Program Directors and must have the support of the Dissertation Advisor. For students enrolled through Pitt, the M.S. degree in Computational Biology will be conferred by Pitt School of Medicine or School of Arts & Sciences, depending on the primary affiliation of the student's advisor. For students enrolled through CMU, the M.S. degree in Computational Biology will be conferred by the Computational Biology Department.

An M.S. degree awarded through the University of Pittsburgh requires the completion of coursework with a minimum of 30 credits with a minimum GPA of 3.0. The degree also requires successful completion of all core courses in the PhD program. For a student to receive an M.S. degree through Carnegie Mellon University, the student must complete all core courses, all three required electives, one TA assignment and an oral proposal. The student must receive a B or better in each individual core course and B- or better in each individual elective class credited and must have received a cumulative B average.

The requirement for passing an M.S. comprehensive examination is met by an oral exam based on a brief (approximately two page) proposal for the Master's thesis research. A Thesis Committee, comprised of 2 committee members will conduct this examination. The scope of the Master's research proposal should be appropriate for a Master's thesis and therefore less than for a Ph.D. Dissertation. For students who transfer to the M.S. track after attempting the Ph.D. comprehensive examination, the examining committee has the option of deciding that performance in the Ph. D. comprehensive examination meets the standard required for an M.S. comprehensive examination. Masters students must submit and defend a thesis and comply with all other applicable requirements for the M.S. degree.

Additional Assurances

Where CPCB policy conflicts with policy of the university at which the student is enrolled, university policy will supersede CPCB policy.

For CMU specifically, please refer to http://www.cmu.edu/student-affairs/theword/ for detailed policies.

For the University of Pittsburgh, please refer to https://www.provost.pitt.edu/students/graduate-studies/additional-graduate-resources for detailed policies.

Appendices

CPCB Transfer Student Checklist

Student Name (Last, First) _____

Student ID number _____

Internal Transfer   From ___CMU ___Pitt   External Transfer From _____
                To   ___CMU ___Pitt

Transferring from Degree Program in _____

Official Transfer Request Letter received from student   _____Date

Transcripts received

University	Unofficial/Official	Date
_____	_____	_____
_____	_____	_____

Starting Semester of Transfer _____   Advisor _____

Selected Specialization Area _____

Course Requirements	Requirement Waived?	Name/number of course accepted towards requirement
Machine Learning	_____	_____
Computational Structural Biology	_____	_____
Cell and Systems Modeling	_____	_____
Computational Genomics	_____	_____
Lab course	_____	_____
Ethics Course	_____	_____
Writing Workshop	_____	_____
Journal Club	_____	_____
Presentation Course	_____	_____
TA Assignment *1 for PITT, 2 for CMU	_____	_____
Required Life Science Elective	_____	_____
Required Specialization Elective	_____	_____
Open Elective	_____	_____

Additional Comments/Stipulations: _____

_____

Approvals

Advisor _____

Program Directors _____

_____

Application for Approval of Computational Biology Internship (02-801)

INTERNSHIP INFORMATION (*Please type or print*)

Student Name _____

Internship Organization _____

Internship Location _____

Internship Supervisor _____
(name and title)
Supervisor Email Address _____

Start Date _____   End Date _____

Project Summary
briefly describe the scope of the work and its relevance to the student's educational goals

REQUIRED SIGNATURES

Student _____
                Signature   *date*

Thesis advisor _____
                Signature   *date*

Program Directors _____
                Signature   *date*

_____
                Signature   *date*

CPCB petition to transfer to terminal M.S. degree

I. Student request

Student Name (Last, First) _____

I hereby request transfer from the Joint Carnegie Mellon University-University of Pittsburgh Ph.D. Program in Computational Biology to a terminal M.S. degree

Student Signature _____   Date_____

_____

II. Advisor Recommendation

I recommend ____do not recommend ____approval of this transfer.

Advisor Signature _____   Date_____

III. Program Action

If approved, the requirements listed below must be completed to receive the terminal M.S. in Computational Biology.

Completion of an additional _____credits/____units with a minimum GPA of 3.0 (PITT) or B average (CMU)

Completion of program core courses
___Machine Learning
___Computational Genomics
___Cell & Systems Modeling
___Computational Structural Biology
___Laboratory Methods for Computational Biologists
___Ethics
___Writing Workshop
___Completion of TA requirement
___Completion of qualifying exam (waived if student has already completed Ph.D. qualifier)
___Submission of written M.S. thesis
___Successful oral defense of M.S. thesis

Program Directors Signatures for approval

_____Date _____

_____Date _____

Thesis Committee Meeting Form

This form is to be submitted to the CPCB Graduate Program Coordinator

Graduate Student _____

Thesis Topic_____

_____

☐   Check the box to indicate that this Thesis Committee met to discuss the graduate student's thesis progress to date, and develop or refine a plan for completion.

Thesis Advisor:

_____	_____	_____
Printed Name	Signature	Date

Committee Member:

_____	_____	_____
Printed Name	Signature	Date

Committee Member:

_____	_____	_____
Printed Name	Signature	Date

Committee Member:

_____	_____	_____
Printed Name	Signature	Date

Committee Member:

_____	_____	_____
Printed Name	Signature	Date

Meeting Notes: _____

_____

_____

_____

Acknowledgment and Acceptance of Handbook Policies and Procedures

___I acknowledge receipt of a copy of the 2021-2022 Student and Faculty Handbook for the Joint CMU-Pitt Ph.D. Program in Computational Biology and agree to be bound by the policies and procedures described therein.

___this acceptance supersedes my previous acceptance of an earlier version of this Handbook.

Student _____

Date _____

This assurance must be returned to the Program Coordinators within a week of receipt of the handbook.