**Neuroscience Institute / Dietrich College**

# Graduate Student Handbook
**Academic Year 2023-2024**

*Ph.D. Program in Neural Computation*

Last revision date: November 10, 2023

# Table of Contents

# 1 Welcome

Neuroscientists are applying new technologies to acquire and analyze large data sets, as well as amassing knowledge of neural circuitry in a variety of brain areas. As a consequence, the need for quantitative models to understand the great complexities of neurobiological systems has never been greater, and quantitative methods are centrally important in the field of neuroscience. In some respects, neuroscience has historically been ahead of much of biology in adopting and valuing quantitative approaches. There have been important advances through the use of quantitative methods in neurophysiology, and there has been a continuing stream of related work within applied mathematics and physics. More recently, engineers, computer scientists, and statisticians have contributed to the field, expanding further the definition of computational neuroscience. Nevertheless, the number of investigators with the requisite skills actively engaged in this domain of research is relatively small. There is a widely recognized need for increased training in the application of computational, mathematical, and statistical methods to biology and medicine, and to problems in neuroscience in particular.

The Program in Neural Computation (PNC) trains students with backgrounds in quantitative disciplines in the growing field of computational neuroscience and also provides them the essential background in experimental neuroscience. The training environment of the PNC brings the strengths of the unique neuroscience community of both Carnegie Mellon University (CMU) and the University of Pittsburgh (Pitt). The PNC is administered by the Neuroscience Institute at Carnegie Mellon and benefits from a close relationship with the Center for the Neural Basis of Cognition (CNBC), an integrative center spanning both CMU and Pitt. All PNC students are by extension members of the CNBC. We offer three degrees: a Ph.D. in Neural Computation, a Joint Ph.D. in Neural Computation and Statistics, and a Joint Ph.D. in Neural Computation and Machine Learning. In this document we outline both the course requirements and program milestones that a PNC student in any of the degree programs must complete during the course of their PhD training.

While this handbook and your college graduate student handbook are specific to your academic experience in the department, there are several other resources and offices graduate students are encouraged to consult during their tenure at Carnegie Mellon University. Information about The Word, the student handbook, the Office of Graduate and Postdoctoral Affairs, the Office of the Dean of Students and others are included in Appendix A of this handbook.

## 1.1 Program Oversight

The PNC program is overseen by the PNC training faculty, the Academic Program Manager, and the Program Co-Directors. Questions about any aspect of the program should be directed either to the Academic Program Manager or the Program Co-Directors:

**Program Co-Directors**

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# 2 Vision, Mission & Philosophy

## 2.1 Vision

Carnegie Mellon University will have a transformative impact on society through continual innovation in education, research, creativity, and entrepreneurship.

## 2.2 Mission

*To create a transformative educational experience* for students focused on deep disciplinary knowledge; problem solving; leadership, communication, and interpersonal skills; and personal health and well-being.

*To cultivate a transformative university community* committed to (a) attracting and retaining diverse, world-class talent; (b) creating a collaborative environment open to the free exchange of ideas, where research, creativity, innovation, and entrepreneurship can flourish; and (c) ensuring individuals can achieve their full potential.

*To impact society in a transformative way* — regionally, nationally, and globally — by engaging with partners outside the traditional borders of the university campus.

# 3 Degrees Offered

## 3.1 Ph.D. in Neural Computation

The program consists of the following core activities:
- Coursework in computational neuroscience, quantitative methodologies and experimental neuroscience
- Exposure to experimental approaches through rotations or thesis research
- Training in teaching, scientific presentations and responsible conduct of research
- Successful defense of a Ph.D. Thesis
- Students must complete a minimum of 96 units of coursework in addition to units obtained through reading and research courses.

Additional satellite activities through the CNBC will also foster students' professional and scientific development.

*Course requirements*

The course requirements for this program include but extend well beyond the curriculum requirements for the CNBC graduate training program. The coursework is designed to ensure that students are well trained in neuroscience and that they also receive in-depth training in a set of quantitative approaches relevant to the field of computational neuroscience. Because of differences in background and educational goals, course requirements for each student in the program will be adapted to their individual needs, drawing on the many computer science, mathematics, and statistics courses offered both at CMU and Pitt. Students must complete a minimum of 96 units of coursework in addition to units obtained through reading and research

courses. Courses must be completed with a grade of B or better to be counted towards graduation requirements.

A PNC student's first year coursework is decided by the student in consultation with the student's faculty mentor and the program co-directors. The week before the start of each fall term the first year PNC students will attend an orientation session held by the program co-directors, where a listing of all PNC relevant courses offered that term would be given. After the orientation meeting, the first semester course choices for each first year student will be determined in consultation, first with the student and the student's faculty mentor, and then with one of the program co-directors. Typically, students will take about 2 courses each term of their first year, including at least one computational neuroscience course and two courses covering experimental neuroscience.

By two weeks before start of fall term of a student's second year, the student must submit a proposed schedule of coursework to the graduate program coordinators, along with a statement from his or her advisor recommending approval. This plan will then be considered by the PNC training faculty which may approve the course plan, or ask for modifications. Approval will be based on meeting program expectations in the following three areas. It is expected that by the end of the third year of the program all coursework will be completed.

Students complete the four-course requirement of the CNBC graduate training program, with specific program related guidelines for the computational component. Students will gain graduate level training through coursework in the following three areas: (i) cell and molecular neuroscience/neurophysiology, (ii) systems neuroscience, and (iii) cognitive neuroscience.

Recommended courses fulfilling this requirement include
  (i) 03-762 Advanced Cellular Neuroscience (CMU) or NROSCI 2100/2101 Cellular and Molecular Neurobiology (Pitt)
  (ii) 03-763 Systems Neuroscience (CMU) or NROSCI 2102 Systems Neuroscience (Pitt), and
  (iii) 85-765 Cognitive Neuroscience.

Computational Neuroscience
Students are required to take at least three computational neuroscience courses, including mathematical, statistical and computational approaches.
To complete the computational requirement, students must take:
  - 36-759 Statistical Models of the Brain (CMU)

Two additional computational electives selected by the student.
Recommended courses fulfilling the computational elective requirement include:
  - 10-733 Representation and Generation in Neuroscience and AI (CMU)
  - 15-686 Neural Computation (CMU)
  - 15-883 Computational Models of Neural Systems (CMU)
  - 18-698/42-632 Neural Signals Processing (CMU)
  - 42-665 Brain-Computer Interface: Principles and Applications (CMU)
  - 85-719 Introduction to Parallel Distributed Processing (CMU)
  - 86-631 Neural Data Analysis (CMU)
  - 86-675 Computational Perception (CMU)
  - BIOENG 2650 Mathematical Models of Biological Learning (Pitt)
  - MATH 3370 Mathematical Neuroscience

Quantitative Methods
Students must take at least two graduate level courses in one quantitative subject (e.g. math, computer science or statistics) to ensure depth of knowledge in this area. Courses listed above under the Computational Neuroscience requirement are not eligible to fulfill this requirement.  Under the quantitative methods requirement, we have identified two examples of focus areas, but students may propose their own sequences.

Dynamical Systems focus
      MATH 2940 Applied Stochastic Methods (PITT)
      MATH 2950 Applied Math Methods (PITT)

Statistics and Machine Learning focus
      10-701 or 10-715 Machine Learning (CMU)
      36-705 Intermediate Statistics (CMU)
      36-707 Regression Analysis (CMU)

Other foci, including "brain imaging and signal processing" have been discussed and may be added as recommended course sets, subject to approval by the program co-directors.  Note that to be eligible to take some of these courses, students might first need to complete course pre-requisites.  These pre-requisites would not count towards the two course depth requirement.

## *Program Milestones*

Progress in the program is tracked based in part on students' successful completion of program milestones. A committee selected by the student and approved by the program co-directors evaluates the performance on milestones. Failure to pass a milestone will result in a student being placed on probation. Specific conditions for removal of probation will be specified by the program co-directors along with a set of deadlines for meeting these conditions. Failure to meet these conditions constitutes grounds for dismissal from the program.

**First year research requirement:**  By the end of the first calendar year in the program, all students are required to complete a computational project. This project will be evaluated by a committee consisting of at least three faculty, two of whom are not one of the student's advisors, and of whom at least two are PNC training faculty. The project requires the student to identify a biological problem, understand the data collection process, articulate the goals of building a model or performing a particular kind of analysis and implement this computational approach. In some cases, this project may be a precursor to the student's eventual thesis project. This project cannot substantially overlap with a project completed for a class, although it may be on the same topic as a class project, provided that it represents a substantial extension of that work.

Students should begin formally discussing this research project no later than the end of the spring term. Initial steps should include forming this committee and organizing a meeting to discuss/outline the project with your committee. The makeup of this committee should be approved by the program co-directors. At this first meeting the committee should approve the project proposal or indicate steps necessary to identify a new project. Then, before the start of the fall term, students must schedule a committee meeting where they present/defend their results.  This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the second year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This will be followed by a meeting with the committee and the student, during which the committee will ask detailed questions about the work. Based on this meeting, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. Questions about the content of the presentation should be raised by the student with committee members well before the evaluation

meeting. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

**Second year research requirement:** In the second year, students are expected to work on research about 1/3 of their time during the academic year and full time during the summer. By the end of the second full year in the program all students are required to complete a deeper computational project. The student's work on the project should demonstrate that the student has 1) the ability to analyze and interpret experimental data in a particular area 2) the ability to develop and implement a computational approach incorporating the relevant level of biological detail and 3) the ability to organize, interpret and present the results of the computational work. This project should be a body of work suitable for publication. It is expected that this work will be written up as a manuscript suitable for submission to a journal in the relevant field; a draft of this manuscript must be submitted to the committee at least a week in advance of the meeting. In most cases this project will be on an area related to the student's eventual thesis project.

The evaluation of this milestone is similar to that of the first year milestone described above. The committee makeup follows the same requirements as for the first year milestone, though it does not have to be the same people. Students are recommended but not required to organize a meeting to discuss/outline the project with their committee. At this first meeting the committee would approve the project proposal or indicate steps necessary to identify a new project. Then students must schedule a committee meeting at which they will present/defend their results. This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the third year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This seminar must be advertised to the PNC community at least one week prior to the event. (To advertise, send the talk announcement including the date, time, place, title, abstract, and faculty committee to the PNC graduate program coordinator.) This will be followed by a meeting with the committee and the student, during which the committee will ask detailed questions about the work. Based on this meeting, and the submitted manuscript draft, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

**Ph.D. Thesis proposal:** Required coursework should be completed by the end of the third year. During the fourth year a Ph.D. candidate should present a thesis proposal to his or her thesis committee and the community. This proposal contains both a written and oral component. Both components of the thesis proposal should include: a succinct summary of the proposed research problem; the significance of the proposed research; a review of relevant literature relating to the problem; a review of the candidate's work leading up to the thesis, including preliminary results; a clear statement of remaining research; and a tentative schedule for completing the work. The oral component should consist of a roughly 40 minute presentation by the student. The format of the written proposal is at the discretion of the advisor according to the norms of the particular sub-discipline, but a reasonable guide is the equivalent of an R01 grant application.

Advising on scheduling the proposal, and guiding in the formation of the dissertation committee, is the thesis advisor's responsibility. The thesis committee should be composed of at least four members, one being an external member and at least two being PNC training faculty. The external member is typically from outside the two participating Universities. All thesis committees are subject to approval by the PNC training faculty.

**Ph.D. Thesis Defense:** Normally, the dissertation is completed during the student's fifth year.

The student should set up a pre-defense meeting with their committee members six months prior to their defense. The final defense is a public presentation, in accordance with the College and University requirements for the Ph.D. This presentation is typically 45 minutes in length, followed by an open question and answer period from the audience. At the end of the public Q&A, the student will address any comments or questions from the committee in a private session. It is the candidate's responsibility to ensure that the College and University's guidelines are followed for publicity of the defense and the availability of the thesis document at least two weeks prior to the defense. Note that the defense must be held at least 21 days before the date the degree is awarded.

## 3.2 Ph.D. in Neural Computation and Statistics

The program consists of the following core activities:
- the requirements for the Ph.D. in Statistics
- coursework in computational neuroscience, quantitative methodologies and experimental neuroscience
- exposure to experimental techniques
- training in teaching, scientific presentations and responsible conduct of research
- participation in CNBC activities as a CNBC student
- a Ph.D. thesis on a neuroscientific topic, with joint advisors, one from within Statistics and one from outside—both being CNBC-affiliated faculty members
- Students must complete a minimum of 96 units of coursework in addition to units obtained through reading and research courses.

Additional satellite activities through the CNBC will also foster students' professional and scientific development.

### *Course requirements*

Students complete the four-course requirement of the CNBC graduate training program, with specific program related guidelines for the computational component. Courses must be completed with a grade of B or better to be counted towards graduation requirements. Students will gain graduate level training through coursework in the following three areas: (i) cell and molecular neuroscience/neurophysiology, (ii) systems neuroscience, and (iii) cognitive Recommended courses fulfilling this requirement include
(i) 03-762 Advanced Cellular Neuroscience (CMU) or NROSCI 2100/2101 Cellular and Molecular Neurobiology (Pitt)
(ii) 03-763 Systems Neuroscience (CMU) or NROSCI 2102 Systems Neuroscience (Pitt), and
(iii) 85-765 Cognitive Neuroscience.

To complete the computational requirement, students must take:
- 36-759 Statistical Models of the Brain

To meet the course requirements for the PhD in Statistics, students must take:

- 36-705: Intermediate Statistics (year 1)
- 36-707: Regression Analysis (year 1)
- 36-708: Statistical Machine Learning (year 1)
- 36-709: Advanced Statistics I (year 1)
- 36-710: Advanced Statistics II (year 2)
- 36-750: Statistical Computing (year 1)
- 36-757: Advanced Data Analysis (year 1)

See http://stat.cmu.edu/phd/requirements for details. Any substitutions or exemptions from coursework must be recommended by the student's advisor and approved by the PNC co-directors and the director of graduate studies in Statistics.

## *Program Milestones*

The milestones listed below are stated as requirements, but some flexibility is likely to be necessary. In individual cases exceptions may be granted by the PNC training faculty and the Statistics faculty. In such cases clear alternative deadlines must be established and communicated in writing to the student.

**First year research requirement:** By the end of the first calendar year in the program, all students are required to complete a computational project. This project will be evaluated by a committee consisting of at least three faculty, two of whom are not one of the student's advisors, and of whom at least two are PNC training faculty. The project requires the student to identify a biological problem, understand the data collection process, articulate the goals of building a model or performing a particular kind of analysis and implement this computational approach. In some cases, this project may be a precursor to the student's eventual thesis project. This project cannot substantially overlap with a project completed for a class, although it may be on the same topic as a class project, provided that it represents a substantial extension of that work.

Students should begin formally discussing this research project no later than the end of the spring term. Initial steps should include forming this committee and organizing a meeting to discuss/outline the project with your committee. The makeup of this committee should be approved by the program co-directors. At this first meeting the committee should approve the project proposal or indicate steps necessary to identify a new project. Then, before the start of the fall term, students must schedule a committee meeting where they present/defend their results. This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the second year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This will be followed by a meeting with the committee and the student, during which the committee will ask detailed questions about the work. Based on this meeting, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. Questions about the content of the presentation should be raised by the student with committee members well before the evaluation meeting. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

**Second year research requirement:** In the second year, students are expected to work on research about 1/3 of their time during the academic year and full time during the summer. By the end of the second full year in the program all students are required to complete a deeper computational project. The student's work on the project should demonstrate that the student has 1) the ability to analyze and interpret experimental data in a particular area 2) the ability to develop and implement a computational approach incorporating the relevant level of biological detail and 3) the ability to organize, interpret and present the results of the computational work. This project should be a body of work suitable for publication. It is expected that this work will be written up as a manuscript suitable for submission to a journal in the relevant field; a draft of this manuscript must be submitted to the committee at least a week in advance of the meeting. In most cases this project will be on an area related to the student's eventual thesis project.

The evaluation of this milestone is similar to that of the first year milestone described above. The committee makeup follows the same requirements as for the first year milestone, though it does not have to be the same people. Students are recommended but not required to organize a

meeting to discuss/outline the project with their committee. At this first meeting the committee would approve the project proposal or indicate steps necessary to identify a new project. Then students must schedule a committee meeting at which they will present/defend their results. This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the third year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This seminar must be advertised to the PNC community at least one week prior to the event.  (To advertise, send the talk announcement including the date, time, place, title, abstract, and faculty committee to the PNC graduate program coordinator.) This will be followed by a meeting with the committee and the student, during which the committee will ask detailed questions about the work. Based on this meeting, and the submitted manuscript draft, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

Note that the second year research requirement also counts to satisfy the Advanced Data Analysis project required by Statistics.

**Ph.D. Thesis proposal:** Required coursework should be completed by the end of the third year. During the fourth year a Ph.D. candidate should present a thesis proposal first to his or her thesis committee and then to the NI and Statistics community. The student will have two joint advisors, one from Statistics and the other a CNBC faculty member from outside of Statistics. A thesis committee will be formed and should be composed of at least four members, one of whom is an external member (typically from outside CMU and Pitt); two must be PNC training faculty; two must be Statistics faculty; and at least one CMU or Pitt member must be from a discipline outside of statistics. The thesis committee is subject to approval by the PNC training faculty and the Department of Statistics faculty.

The thesis proposal contains both a written and oral component. Both components should include: a succinct summary of the proposed research problem; the significance of the proposed research; a review of relevant literature relating to the problem; a review of the candidate's work leading up to the thesis, including preliminary results; a clear statement of remaining research; and a tentative schedule for completing the work. It should also conform to the stylistic requirements for thesis proposals in the Department of Statistics. As in the Department of Statistics, the thesis committee must offer its preliminary approval of the proposal following a meeting that is open to other faculty. The student then arranges to present the proposal publicly, so that CNBC and Statistics faculty and other community members can attend. Formal approval is conferred by the Statistics faculty and the PNC training faculty.

**Ph.D. Thesis Defense:** Normally, the dissertation is completed during the student's fifth year. The student should set up a pre-defense meeting with their committee members six months prior to their defense. The final defense is a public presentation, in accordance with the College and University requirements for the Ph.D. This presentation is typically 45 minutes in length, followed by an open question and answer period from the audience. At the end of the public Q&A, the student will address any comments or questions from the committee in a private session. It is the candidate's responsibility to ensure that the College and University's guidelines are followed for publicity of the defense and the availability of the thesis document at least two weeks prior to the defense.  Note that the defense must be held at least 21 days before the date the degree is awarded.

## 3.3 Ph.D. in Neural Computation and Machine Learning

The program consists of the following core activities

- the requirements for the Ph.D. in Machine Learning;
- coursework in computational neuroscience, quantitative methodologies and experimental neuroscience
- exposure to experimental techniques in the form of a lab rotation;
- training in teaching, scientific presentations and responsible conduct of research
- participation in CNBC activities as a CNBC student; and
- a Ph.D. thesis on a neuroscientific topic; if there is a single advisor, that person should be both a CNBC faculty member and affiliated with MLD; otherwise, the student may two co-advisors who, between them, have CNBC and MLD affiliations.
- Students must complete a minimum of 96 units of coursework in addition to units obtained through reading and research courses.

Additional satellite activities through the CNBC will also foster students' professional and scientific development.

## *Course requirements*

Students complete the four-course requirement of the CNBC graduate training program, with specific program related guidelines for the computational component. Courses must be completed with a grade of B or better to be counted towards graduation requirements. Students will gain graduate level training through coursework in the following three areas: (i) cell and molecular neuroscience/neurophysiology, (ii) systems neuroscience, and (iii) cognitive neuroscience. Recommended courses fulfilling this requirement include

    (i)  03-762 Advanced Cellular Neuroscience (CMU) or NROSCI 2100/2101 Cellular and Molecular Neurobiology (Pitt)

    (ii)  03-763 Systems Neuroscience (CMU) or NROSCI 2102 Systems Neuroscience (Pitt), and

    (iii) 85-765 Cognitive Neuroscience.

To complete the computational requirement, students must take:

- 36-759 Statistical Models of the Brain

To meet the course requirements in MLD they successfully complete the 5 ML Core courses, with an average GPA of 3.5 or better. These include:

- 10-715 Advanced Introduction to Machine Learning
- 10-716 Advanced Machine Learning
- 36-705 Intermediate Statistics

Plus any two of the following:

- 10-703 Deep Reinforcement Learning or 10-707 Topics in Deep Learning
- 10-708 Probabilistic Graphical Models
- 10-725 Convex Optimization
- 15-750 Algorithms or 15-853 Algorithms in the Real World
- 15-780 Graduate Artificial Intelligence
- 15-826 Multimedia Databases and Data Mining
- 36-707 Regression Analysis
- 36-709 Advanced Statistical Theory I
- 36-710 Advanced Statistical Theory II

Any substitutions or exemptions from coursework must be recommended by the student's advisor and approved by the program co-directors and the co-directors of graduate studies in MLD.

*Program Milestones*

**First year research requirement:** By the end of the first calendar year in the program, all students are required to complete a computational project. This project will be evaluated by a committee consisting of at least three faculty, two of whom are not one of the student's advisors, and of whom at least two are PNC training faculty. The project requires the student to identify a biological problem, understand the data collection process, articulate the goals of building a model or performing a particular kind of analysis and implement this computational approach. In some cases, this project may be a precursor to the student's eventual thesis project. This project cannot substantially overlap with a project completed for a class, although it may be on the same topic as a class project, provided that it represents a substantial extension of that work.

Students should begin formally discussing this research project no later than the end of the spring term. Initial steps should include forming this committee and organizing a meeting to discuss/outline the project with your committee. The makeup of this committee should be approved by the program co-directors. At this first meeting the committee should approve the project proposal or indicate steps necessary to identify a new project. Then, before the start of the fall term, students must schedule a committee meeting where they present/defend their results. This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the second year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This will be followed by a meeting with the committee and the student, during which the committee will ask detailed questions about the work. Based on this meeting, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. Questions about the content of the presentation should be raised by the student with committee members well before the evaluation meeting. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

**Second year research requirement:** In the second year, students are expected to work on research about 1/3 of their time during the academic year and full time during the summer. By the end of the second full year in the program all students are required to complete a deeper computational project. The student's work on the project should demonstrate that the student has 1) the ability to analyze and interpret experimental data in a particular area 2) the ability to develop and implement a computational approach incorporating the relevant level of biological detail and 3) the ability to organize, interpret and present the results of the computational work. This project should be a body of work suitable for publication. It is expected that this work will be written up as a manuscript suitable for submission to a journal in the relevant field; a draft of this manuscript must be submitted to the committee at least a week in advance of the meeting. In most cases this project will be on an area related to the student's eventual thesis project.

The evaluation of this milestone is similar to that of the first year milestone described above. The committee makeup follows the same requirements as for the first year milestone, though it does not have to be the same people. Students are recommended but not required to organize a meeting to discuss/outline the project with their committee. At this first meeting the committee would approve the project proposal or indicate steps necessary to identify a new project. Then students must schedule a committee meeting at which they will present/defend their results. This meeting should occur by the end of the summer, and certainly no later than Sept 15 of the third year. The initial part of this meeting involves a 30 minute presentation by the student, which is open to the public. This seminar must be advertised to the PNC community at least one week prior to the event. (To advertise, send the talk announcement including the date, time, place, title, abstract, and faculty committee to the PNC graduate program coordinator.) This will be followed by a meeting with the committee and the student, during which the committee will ask detailed

questions about the work. Based on this meeting, and the submitted manuscript draft, the committee will evaluate the student's work and will decide whether a student passes, fails or needs to revise the project, subject to re-evaluation. In the event of a pass, the student should have the committee sign a milestone completion form, which should be turned in to the Academic Program Manager. The form can be found in Appendix B of the handbook.

**Ph.D. Thesis proposal:** Required coursework should be completed by the end of the third year. During the fourth year a Ph.D. candidate should present a thesis proposal first to his or her thesis committee and then to the CNBC and MLD community.

A thesis committee will be formed and should be composed of at least four members, one of whom is an external member (typically from outside CMU and Pitt); two must be PNC training faculty; two must be MLD faculty; and at least one CMU or Pitt member must be from a discipline outside of statistics and computer science. The thesis committee is subject to approval by the PNC training faculty and the MLD faculty.

The thesis proposal contains both a written and oral component. Both components should include: a succinct summary of the proposed research problem; the significance of the proposed research; a review of relevant literature relating to the problem; a review of the candidate's work leading up to the thesis, including preliminary results; a clear statement of remaining research; and a tentative schedule for completing the work. It should also conform to the stylistic requirements for thesis proposals in MLD. The thesis committee must offer its preliminary approval of the proposal. The student then arranges to present the proposal publicly, so that CNBC and MLD faculty and other community members can attend. Formal approval is conferred by the MLD faculty and the PNC training faculty.

**Ph.D. Thesis Defense:** Normally, the dissertation is completed during the student's fifth year. The student should set up a pre-defense meeting with their committee members six months prior to their defense. The final defense is a public presentation, in accordance with the College and University requirements for the Ph.D. This presentation is typically 45 minutes in length, followed by an open question and answer period from the audience. At the end of the public Q&A, the student will address any comments or questions from the committee in a private session. It is the candidate's responsibility to ensure that the College and University's guidelines are followed for publicity of the defense and the availability of the thesis document at least two weeks prior to the defense.  Note that the defense must be held at least 21 days before the date the degree is awarded.

## *Applying to the Joint PNC/ML program*

To apply to the Joint-ML/PNC program, a student already enrolled in the PNC program must:

- Take and pass 10715, 36705 and 10716.  Applicants are expected to have a GPA of 3.8 or higher in these courses, therefore letter grades are required. (Students who took courses before June 2023, will be Grandfathered in under the previous GPA rules of 3.5 for the courses already taken.)
- Identify an MLD Core Faculty member who agrees to serve as their MLD mentor.  The mentor will help guide the ML portion of the student's research, represent the student at the MLD student evaluation meetings, become a member of the student's thesis committee, and generally advocate for the student within MLD.

Applications should be emailed to the MLD PhD Program Administrator (with the PNC PhD Program Administrator cc'd), and must include:

- Student's CV
- Statement of Research Interests (one page will do)
- CMU Transcripts (unofficial will do)
- A short paragraph of recommendation from the home PhD Advisor (or PhD program Director if advisor has not yet been assigned)
- Brief email from the MLD Mentor confirming their willingness to serve in that role.

The MLD admissions committee may request additional information as needed.

Interested students are encouraged to apply as early as possible in their graduate studies, so that their research direction can be informed by their interactions with their MLD mentor. They should apply as soon as they satisfy the above requirements, typically at the end of the first or else second year of their PhD program. Later applications will also be considered as long as they are made before the student's thesis proposal.

Applications must be submitted by May 31 to be considered for admission by the immediately following Fall semester.

Once admitted to the Joint-ML PhD program, in addition to being reviewed at their home department, the student's progress will also be reviewed by the MLD faculty at their regular student evaluation meetings, where the student will be represented by their MLD mentor. The student's advisor may also be present for this review.

# 4 Additional Program Information and Requirements

## 4.1 Training in Responsible Conduct of Research (RCR)

All students must obtain RCR training by completing the CNBC Brain Bag Series AND either the CMU Libraries RCR series or CTSI RCR seminar series at Pitt.

CMU RCR Seminar Series
CMU Libraries and the Office of the Vice President for Research (OVPR) provide a variety of Responsible Conduct of Research seminars on topics relevant to research ethics as part of the Libraries' workshop offerings each semester. RCR applies to all fields of research, and attendance is encouraged from all academic and research units. CMU is dedicated to the highest quality education for all students and scholars, and RCR instruction is essential to producing the best scientists and researchers for the future. Students will attend two half-day workshops to fulfill the requirement. For more information: https://library.cmu.edu/services-overview/workshops-training#rc

CTSI RCR seminar series
Before the end of their second year in the program, all students are required to complete a one-semester Responsible Conduct in Research training experience. This will be completed by attending no fewer than 13 of the seminars on offer for that semester by the Clinical and Translational Science Institute at the University of Pittsburgh. Details on those seminars are available at https://ctsi.pitt.edu/education-training/. Students can choose any 13 of the offered seminars that they like, but all should be completed within the semester. Note that registration is required for each seminar individually, and attendance is logged.

CNBC-specific RCR training
The CNBC provides training in scientific ethics and responsible conduct in research through a series of informal "brain bag" presentations. PNC students are expected to attend these brain bag presentations in their third year and they will serve as refresher training for the core ethics training

given in years one and two of the program.

## 4.2 Collaboration with experimentalists

One critical aspect of a successful training program for computational neuroscience is to give students a detailed understanding of how the experimental data they are analyzing or modeling are collected. This allows students to appreciate the limitations of the experimental data (such as sources of variability), appreciate what kinds of experiments can and cannot be done and aid in their ability to interact with experimentalists. This also increases the relevance of the student's computational-based research and increases the overall caliber of the student's PhD dissertation.

All students in the PNC are encouraged to do experimental work and/or to collaborate closely with experimentalists. Students working in different areas will have different needs in terms of the extent of their involvement collecting experimental data. Some students will be in laboratories in which both experimental and computational work is being performed and will gain experience in both approaches throughout their training. If the experimental work involves animals, such students are expected to master, in addition to experimental procedures, basic principles governing animal care and oversight of animal welfare. Students working in a strictly computational lab are expected to do a 10 week rotation in an experimental lab with the intent to begin (or continue) a collaboration with that lab. The goal of this rotation is that students should be sufficiently well trained that they can design and carry out their own experiments. The student is responsible for meeting this requirement, and it should be discussed with the student's advisor not later than by the end of the first year. All students are required to submit a one half to one page proposal detailing the experimental training they intend to receive for approval by the PNC faculty. At the end of this training experience, a one half to one page evaluation statement must be submitted to the training faculty detailing what was learned and accomplished. This document should be written by the student and approved (signed) by the advisor, prior to the approval of the thesis proposal, and preferably earlier. Note that the experimental rotation may serve as a major component of either the first-year or second-year research requirement but that this is not necessarily the case.

## 4.3 Other Program Activities

Students will participate with CNBC graduate training program students in the following co-curricular activities.

*The CNBC colloquium series* is a student-run speaker series that brings eminent scientists to Pittsburgh. Students have played a major role in the selection and hosting of speakers throughout the years; faculty provide input on speaker selection, but the students do all the voting and interact extensively with the speakers during their visits.

*The Brain Bag research seminars* meet approximately bi-weekly throughout the academic year on Monday evenings. At each Brain Bag, a student gives a brief talk describing research in progress. Students are required to attend 2 Brain Bags per semester. Each student must present a Brain Bag by the end of their third year in the program.

*The CNBC Retreat* is held annually. The goal of the retreat is to foster scientific and social interactions among faculty, post-docs, and students affiliated with the CNBC. The program includes scientific presentations and discussions, as well as other informational, social, and recreational events.

## 4.4 Training faculty

Any potential PhD thesis advisor must be a member of the PNC approved training faculty. Training faculty will be drawn from Pitt and CMU, and will include both faculty working in computational neuroscience and experimental faculty who have interest and experience in collaborating on computational work. Training faculty from the two campuses will be treated equally in every respect, including availability and cost of students. An up to date list of training faculty can be found at https://www.cmu.edu/ni/academics/pnc/pnc-training-faculty.html .

# 5 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 university ombudsperson, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-1018. Obtain general information about Carnegie Mellon University by calling 412-268-2000.

Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault and fire safety policies, and containing statistics about the number and type of crimes committed on the campus, and the number and cause of fires in campus residence facilities during the preceding three years. You can obtain a copy by contacting the Carnegie Mellon Police Department at 412-268-2323. The annual security and fire safety report also is available online at www.cmu.edu/police/annualreports.

Information regarding the applicable grievance procedures for alleged violations of the Statement of Assurance is available at https://www.cmu.edu/policies/forms-and-documents/soa-violations.pdf.

The Office for Institutional Equity and Title IX may be reached at 412-268-7125 or institutionalequity@cmu.edu.

# 6 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:
https://www.cmu.edu/student-affairs/theword/

# 7 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:
  https://www.cmu.edu/student-affairs/theword//index.html
- Academic Integrity Policy:
  https://www.cmu.edu/policies/student-and- student-life/academic-integrity.html
- University Policies Website:
  https://www.cmu.edu/policies/
- Office          of          Graduate          and          Postdoctoral          Affairs:
  https://www.cmu.edu/graduate/policies/index.html
- Additional Policy Resources (e.g. college/department specific policies)

Due to the changing nature of conditions and expectations surrounding public health and safety requirements please visit
https://www.cmu.edu/coronavirus/
for the most up to date information.

Please see **Appendix A** for additional information about The Word and University resources.

# 8 Academic Calendar

The Academic Calendar can be found at:
https://www.cmu.edu/hub/calendar/index.html
and provides information on all deadlines including registration dates, class start dates, add/drop deadlines, exam dates and more.

# 9 Doctoral Degree Competition and Certification

## 9.1 Standard Degree Requirements & Degree Certification

Carnegie Mellon graduate students are expected to complete their degree requirements within the standard length of time for their program of study as outlined in the relevant Graduate Student Handbook. Standard program lengths for graduate students vary significantly – ranging from two semesters for some full-time master's programs to several or more years for doctoral programs. Upon completion of the graduate program degree requirements, the degree will be certified by the student's academic program in the semester in which the student completes the requirements.

*Early Competition*

Graduate students who consider the completion of all degree requirements in less than the standard length of time for their program of study may consult with their degree-granting program or department to determine if early degree certification is allowed and under what circumstances.

*Extended or Longer-than-Standard Competition*

Longer-than-standard degree completion may occur due to academic interruptions in making

progress toward the degree as defined by the academic program, interruptions of full-time study or progress towards the degree due to serious, documented medical issues, or other unusual or unforeseen circumstances.

Doctoral students who require an extended period to complete their degree requirements must consult with their academic program, and are subject to the CMU Policy on Doctoral Student Status (https://www.cmu.edu/policies/student-and-student-life/doctoral-student-status.html), specifically the "Time to Degree" section.

## 9.2 Additional Guidance for Students

### *Program of Study*

Students seeking guidance about their program of study and degree requirements should consult with their academic advisor and/or appropriate associate dean.

### *Financial Aid and Student Account*

Students are expected to make normal progress toward their degree in order to graduate within the standard timeframe for their program of study. Under U.S. Federal Title IV regulations, student eligibility for federal financial aid is contingent upon enrollment in and successful completion of courses that are counted as credit toward their current degree program. To receive the maximum amount of federal financial aid for which they may be eligible, students must enroll each semester in at least 36 units that count toward their current degree level. (See separate guidance regarding integrated degree completion.)

Students should consult with their designated college liaison in The HUB regarding billing and financial aid, particularly for early completion, longer-than-standard completion, or integrated undergraduate and master's degree programs.

### *International Students*

Immigration status for students in F-1 and J-1 non-immigrant status is tied to making normal progress toward completing degree requirements. Therefore, F-1 and J-1 students who are considering completing their degree requirements early, anticipating longer-than-standard completion, or moving from an undergraduate to a graduate student classification (integrated undergraduate-graduate study) should consult with their designated advisor in the Office of International Education (OIE) to ensure compliance with immigration regulations.

## 9.3 Statute of Limitations

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.

# 10 Doctoral Degree Requirements and Related Policies/Protocols

## 10.1 Required Units for Degree Attainment

Students are required to be registered for at least 36 units each semester. This is typically a combination of course units and research units in the early years of the program and will shift to a full 36 units of research as students' progress toward defending their theses. To obtain a Ph.D. Degree, students are required to complete 396 units.

## 10.2 Department Policy/Process for Withdrawing from a course

Any student who wishes to withdraw from a course must consult with their advisor first. After that, the student will need to notify the Program Directors and Academic Program Manager to be informed of the process to withdraw from the course.

## 10.3 Drop/Add/Withdraw Procedures

Students taking undergraduate and Master's level courses must follow the procedures and deadlines for adding, dropping, or withdrawing from courses as identified on the academic calendar. Information can be found at

https://www.cmu.edu/hub/registrar/course-changes/index.html

There is a separate calendar for doctoral level courses.

## 10.4 Transfer Courses and 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 as follows: 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 taken into account for academic actions, honors or QPA calculations.

## 10.5 Protocol for evaluation of transfer credit

The program co-directors will review petitions for transfer credit on a case by case basis. Courses will be evaluated based on course level, topics covered, grade received, and credits earned. Courses below the graduate level will not be considered. Students must receive a grade of B or better for the transfer credit to be eligible for review. A course syllabus should be submitted as part of the review process.

## 10.6 Teaching Requirements

In order to build skills in teaching, mentoring, communication and management skills, each student will be required to serve as a teaching assistant for two courses during their career as a graduate student in the program. The ideal scenario would include one introductory level course and one advanced level course. The time commitment for TA-ship should be roughly 12 hours per week. The student will receive a formal evaluation from the course instructor each semester they serve as a Teaching Assistant. Students must receive a satisfactory evaluation to receive credit for the semester. Note that students in the joint PNC/ML degree program will split their TA responsibilities between CNBC and ML, i.e., students will TA one CNBC course and one ML course. The ML course will be subject to the standard ML PhD teaching assistant requirements.

Both university policy and PA law require that all nonnative English speaking students have their language skills assessed before working as teaching assistants who meet with students. The fluency of all instructional personnel will be rated by Language Support in the Student Academic Success Center to determine at what level of responsibility the student can TA.

Students can satisfy the certification requirement by taking the International Teaching Assistant (ITA) test administered by the Student Academic Success Center or using their TOEFL speaking score. In addition to administering the International Teaching Assistant (ITA) Test (a mandatory screening test for any non-native speaker of English), Language Support in the Student Academic Success Center offers Language and Cross-cultural Support for teaching assistants who are non-native English speakers.

### Alternate TA Fulfillment: PNC/PSN Outreach Ambassador

To join the Alternate TA Fulfillment program, the student must fill out a template petition and submit it to the Neuroscience Institute Student Organization (NISO) & Melissa Stupka by the end of the first academic year of the program (summer after 1st year of classes). This petition will indicate the student's interest in the alternate TA-ship, as well as a rough timeline of when they will complete the required activities and what types of activities they are interested in. To receive credit for the program, they must complete all requirements before their thesis proposal.

There are a few options for fulfilling the requirements for the alternate TA-ship, which are listed below. If a student feels strongly about another option not listed, they may petition the NISO Outreach and Diversity Committee and faculty for a new event. At the end of each semester, the regular PNC/PSN progress report will include a section for students in the alternate TA-ship to indicate which events they completed during the semester. After each event is completed, the students who attended will fill out a Google Form so that the events are tracked in a Google Sheets document, managed by NISO. This allows students and faculty to view their progress at any time. Although this tracking is available, the responsibility to complete events in a timely manner ultimately falls on the student.

When the student completes the TA-ship, they will turn in a final portfolio, detailing the events and experiences they had throughout their alternate TA-ship. This must be completed before the student's thesis proposal. This portfolio will be validated by the faculty program directors for official TA-ship credit.

List of TA Fulfillment Options:
- TA a CMU/CNBC class for 2 semesters (regular TA, must be done at least once)
- TA a CMU/CNBC class for 1 semester + any one of the following:
  - Serve as a TA for the PNC/PSN summer orientation, 2x
  - Serve as a TA for the NI Undergrad summer program, 2x
  - Serve as a TA for Neuromatch Academy summer program, 1x
  - Implement and lead 9 outreach events to teach younger students about neuroscience. Examples:
    - Backyard brains events at local Pittsburgh schools
    - Plan and host a SciTech day at the Carnegie Science Center
    - Plan and host a Saturday session at the Gelfand Center

## 10.7 Research Requirements

### Grading system for research

The advisor provides the grade for the student's research every semester.

*Research funding options*

Students are recommended to seek outside funding – under the direction and guidance of their advisor and committee—for tuition, stipends, research and travel. Note that this does not mean that students are required to obtain their own funding. The Institute views this as part of the training experience.

Students are typically funded by the department or faculty grants.  The summer prior to each academic year the Finance Manager notifies the student as to how they will be funded the following academic year.

Information about fellowships available from external agencies can be obtained from the Program Directors.

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

*Resources and Regulations Governing Research at Carnegie Mellon*

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

## 10.8 Internship Opportunities

PNC students may wish to participate in paid internships at off-campus organizations. Internships must be approved by the student's advisor and the co-directors of the graduate program. Internships are typically undertaken during the summer semester, but can take place at other times with approval. PNC will enroll all students who are pursuing an internship for a 3-unit credit bearing internship course (86-799 Internship for Neural Computation Graduate Students). This internship will appear on a student's transcript. Internships taken during the summer months will not incur tuition, internship experiences outside of the summer months may require full time tuition.  The work for the internship must be appropriate to the goals of the academic program and be approved by the student's advisor. International students are required to consult with department representatives and the Office of International Education for eligibility before seeking an internship/co-op or signing an offer contract. This is to ensure the university is following immigration laws for F & J status students. For additional information, please refer to OIE's Employment Options for international students.

## 10.9 Certification of Degree

After the student successfully defends their dissertation and the final document is approved by all committee members, the student emails the academic program manager the final document along with the signed Thesis Defense Completion form (See Appendix B).  The academic program manager then certifies the student via S3.

## 10.10 Graduate Student Time Off and Leaves of Absence

Students with graduate assistantships are expected to continue with their research during academic breaks (including summer months) with the exception of official University holidays. Paid time off for personal business or vacations generally is not included as part of a graduate's financial support. A supported graduate student who wants to take a short break (one or two weeks) must get approval for that break from his/her advisor and, if required by the terms of the student's support package, must make up the work.

Supported graduate students wishing to take longer periods of personal time off must do so without financial support. The advisor will notify the Department's Business Office of any such arrangements so that an appropriate adjustment in the student's support can be processed.

The timing and length of any time off must be approved in advance by the advisor before travel commitments are made. Before absences, the student must discuss with the supervising faculty member(s) ways to ensure that his/her progress is satisfactory and that research and/or teaching responsibilities can be met satisfactorily. Students with TA responsibilities are expected to be on campus to attend any department required TA training and at the end of the semester to finish grading or other duties assigned by the department.

https://www.cmu.edu/hub/registrar/leaves-and-withdrawals/

## 10.11 Advising

Twice each year, the PNC training faculty reviews the progress of each student in all aspects of the program. The results of this evaluation will be communicated to the student by the co-directors of the graduate program. As part of this process, each student is expected to submit a self-evaluation, stating whether they meet their previous semester's goals, and also giving their plans for next steps in the program.

**Selection and change of thesis advisor:** At all times during their graduate training, students will be engaged in research under the supervision of a faculty advisor. This advisor is responsible for the academic and financial support of the student. Students initially will be assigned an advisor upon admission to the PNC, who will guide the student in selecting courses and help form his or her initial research project. By the end of the summer following the first-year students must identify a thesis advisor, which in many cases will be the first year academic advisor. Occasionally, a student's faculty advisor may be changed (see below); most often this change occurs because of a change in the student's research interests. If the advisor must change for any reason, it is the responsibility of the student to identify a new advisor who is willing and able to provide academic and financial support. This advisor must then be approved by the program co-directors and the director of the Neuroscience Institute.

A student may voluntarily change advisors with the mutual consent of the new advisor, the program co-directors and the director of the Neuroscience Institute. An advisor may terminate his or her supervision of and responsibility for a student after written notification of the problems, which may include lack of effort, lack of research progress, lack of research aptitude, failure to obey policy or procedures, failure to comply with University regulations, or behavior detrimental to the laboratory or program. Consideration of this action must be brought to the attention of the student, the PNC program co-directors and the Neuroscience Institute Director. A student who no longer has an advisor will be given two weeks to find a new advisor. Students without advisors after this time may be terminated from the program.

## 10.12 Summary of Graduate Student Appeal and Grievance Procedures

*Grievances within the Neuroscience Institute*

From time to time students may have complaints about some aspect of their training in the PNC. Graduate students are encouraged to discuss such concerns with any faculty member, especially their advisors or the program co-directors. The PNC tries to solve problems informally, but there may come a time when a problem arises that cannot be resolved through informal procedures. To provide for this situation, there is a formal grievance procedure.

The process will commence when a student files a grievance in writing with the director of the Neuroscience Institute. The grievance will be discussed by a three-person board including the director of the Neuroscience Institute and two PNC faculty members selected by the director. The board will render a written recommendation, with copies sent to the student, the office of the Dean of H&SS, and those against whom the grievance was brought (if specific individuals are involved). No person against whom the grievance is brought will have a role in investigating it. If the director is among those against whom the grievance is brought, then the Dean will be asked to designate another senior faculty member from the Neuroscience Institute to substitute for the co-director on the three-person board.

University policies and agreements governing student, staff, and faculty rights supersede this procedure. If a satisfactory settlement is not reached through the activity of the three-person board described above, the student may bring the grievance to the Dean and, subsequently, to the Provost. In this case the grievance board's written recommendation will be part of the preliminary background information reviewed by the Dean or Provost or other University official before any action is taken.

The student may withdraw the grievance at any point throughout the Departmental investigation.

*Grievances within Dietrich College*

Any graduate student who has exhausted normal grievance procedures within the Department may present a grievance to the office of the Dean of the College. The Dean may request statements or testimony from other parties involved, and will consider the grievance in an ad hoc committee composed of the Dean, a faculty member from a department not involved in the grievance and a graduate student from a second uninvolved department. The committee will present its decision in writing to all parties involved

https://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html

# 11 Grading and Evaluation

## 11.1 Process for Appealing Final Grades

Final grades will be changed only in exceptional circumstances and only with the approval of the instructor and the department, unit or program. Grading is a matter of sound discretion of the instructor and final grades are rarely changed without the consent of the instructor who assigned the grade. The following circumstances are the unusual exceptions that may warrant a grade appeal: (a) the final grade assigned for a course is based on manifest error (e.g. a clear error such as arithmetic error in computing a grade or failure to grade one of the answers on an exam), or (b) the faculty or staff member who assigned the grade did so in violation of a University policy.

## 11.2 Policy on Grades for Transfer Courses

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 as follows: 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 grade. Such courses will not be taken into account for academic actions, honors or QPA calculations.

## 11.3 Academic Integrity

Students at Carnegie Mellon are engaged in intellectual activity consistent with the highest standards of the academy. The relationship between students and instructors and their shared commitment to overarching standards of respect, honor and transparency determine the integrity of our community of scholars. The actions of our students, faculty and staff are a representation of our university community and of the professional and personal communities that we lead. Therefore, a deep and abiding commitment to academic integrity is fundamental to a Carnegie Mellon education. Honesty and good faith, clarity in the communication of core values, professional conduct of work, mutual trust and respect, and fairness and exemplary behavior represent the expectations for ethical behavior for all members of the Carnegie Mellon community.

### *Policy Statement*

In any manner of presentation, it is the responsibility of each student to produce her/his own original academic work. Collaboration or assistance on academic work to be graded is not permitted unless explicitly authorized by the course instructor(s). Students may utilize the assistance provided by the Student Academic Success Center and the Academic Resource Center (CMU-Q) unless specifically prohibited by the course instructor(s). Any other sources of collaboration or assistance must be specifically authorized by the course instructor(s).

In all academic work to be graded, the citation of all sources is required. When collaboration or assistance is permitted by the course instructor(s) or when a student utilizes the services provided by the Student Academic Success Center and the Academic Resource Center (CMU-Q), the acknowledgement of any collaboration or assistance is likewise required. This citation and acknowledgement must be incorporated into the work submitted and not separately or at a later point in time. Failure to do so is dishonest and is subject to disciplinary action.

Instructors have a duty to communicate their expectations including those specific to collaboration, assistance, citation and acknowledgement within each course. Students likewise have a duty to ensure that they understand and abide by the standards that apply in any course or academic activity. In the absence of such understanding, it is the student's responsibility to seek additional information and clarification.
https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html

## 11.4 Review of Progress

At the end of the Fall and Summer semesters, the training faculty of the Neuroscience Institute meet to discuss the record and progress of all students in the program. The evaluation for each student is based on several factors:

- The student's status at the start of the semester, as expressed by the previous Doctoral Student Review evaluation;
- The student's accomplishments during the semester, as described by the student in a form submitted prior to the meeting, and summarized at the meeting by the student's

> advisor;
- The advisor's evaluation, expressed in the form of a draft of a Doctoral Student Review letter that the advisor proposes to be sent to the student;
- Input from other faculty who have had dealings with the student;
- Discussion by the faculty of all of the above factors at the Doctoral Student Review meeting, which may include modifications to the letter drafted by the advisor; and
- Final decision by the Program Directors based on the above discussion.

After the meeting, the Program Directors will send a letter of progress to each student, based on the recommendation of the faculty at the meeting. Through this mechanism, the faculty can report "satisfactory" or "unsatisfactory" progress, offer recommendations to the student and advisor, set specific progress goals that must be achieved, or, if necessary, terminate a student's participation in the program. The continuation or conditions of a student's funding may also be determined in the meeting.

In general, termination will be preceded by at least one unsatisfactory evaluation. An explicit warning (called an "N-1 letter") will normally be given one semester before any decision to terminate a student's participation in the program.

In addition to the progress review, the Doctoral Student Review meeting and resultant letters provide an opportunity for the faculty to learn about and acknowledge the students' contributions in service to the Program and achievements such as research publications and awards. Matters of academic policy are frequently discussed at the Doctoral Student Review meeting as they arise in the discussion of individual students.

The Doctoral Student Review process ensures that each student's progress is reviewed by the entire faculty, and not only by the advisor. The Doctoral Student Review process involves a careful consideration by the faculty of each student's case. If the student wishes to appeal the decisions reflected in their letter, the student should state their perspective in a request to the Program Directors to review the case again. The Directors will undertake such a review, in consultation with the faculty as appropriate, and issue a written response to the student. If the student is not satisfied with the Chair's response, it may be appealed as described in the Student Handbook for Carnegie Mellon University.

# 12 Safeguarding Educational Equity

## 12.1 Assistance for Individuals with Disabilities

http://www.cmu.edu/education-office/disability-resources/

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical, digital, and programmatic access to ensure that students with disabilities have equal access to their educational experience. We work to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations can begin the process through Disability Resources' secure online portal:

https://rainier.accessiblelearning.com/cmu/

or email access@andrew.cmu.edu to begin the interactive accommodation process.

Students with physical, sensory, cognitive, or emotional disabilities are encouraged to self-identify with the Office of Disability Resources and request needed accommodations. Any questions about the process can be directed to access@andrew.cmu.edu, or call (412) 268-6121.

## 12.2 Sexual Misconduct Policy

The University prohibits sex-based discrimination, sexual harassment, sexual assault, dating/ domestic violence, sexual exploitation, stalking, and violation of protective measures. The University also prohibits retaliation against individuals who bring forward such concerns or allegations in good faith.

The University's Sexual Misconduct Policy is available at:
https://www.cmu.edu/policies/administrative-and-governance/sexual-misconduct/index.html

The University's Policy Against Retaliation is available at:
https://www.cmu.edu/policies/administrative-and-governance/whistleblower.html

If you have been impacted by any of these issues, you are encouraged to make contact with any of the following resources:
- Office for Institutional Equity and Title IX
  http://www.cmu.edu/title-ix/
  412-268-7125
  institutionalequity@cmu.edu
- University Police
  https://www.cmu.edu/police/
  412-268-2323

Additional resources and information can be found at:
https://www.cmu.edu/title-ix/resources-and-information/index.html

## 12.3 Gestational and Parental Accommodations

https://www.cmu.edu/graduate/programs-services/maternity-accommodation-protocol.html

Providing holistic student support is a top priority at Carnegie Mellon. The protocols on this page are designed to support the parental needs of students and their families.

**Students seeking any of the Parental Accommodations described below must register with the Office of the Dean of Students by contacting the office for an appointment by calling 412-268-2075.**

Students are encouraged to register with the Office of the Dean of Students ninety (90) days in advance of the anticipated arrival of the child as applicable in the individual circumstance. At the time of registering, students will have the opportunity to consult about resources, procedures, funding options and preparation for discussing academic accommodations with the student's academic department. Students should also consult with their academic advisors either before or in conjunction with registering with the Office of the Dean of Students.

*Accommodations for Gestational Parents*

The birth of a child is a significant life event that may require time away from academic pursuits for delivery and recovery from delivery of a newly born child. Students whose anticipated delivery date is during the course of a semester may need to take time away from their academic responsibilities. Carnegie Mellon students seeking time away are afforded two options as possible accommodation:
- **Short-Term Accommodation for Gestational Parents** – A short term absence from academic responsibilities up to a maximum of six (6) weeks. Short-Term Accommodation may be extended by two (2) weeks, for a total of eight (8) weeks, where a longer absence

is medically necessary. Prior to the absence students must work with relevant university faculty and staff to adjust their course work, research, teaching and other academic responsibilities during the period of absence. This may include extensions of time to complete assignments, incomplete grades, and/or dropping courses, shifting research responsibilities and adjusting TA assignments. Students who take a Short-Term Accommodation will remain enrolled.

- **Formal Leave of Absence**– A formal leave of absence under the Student Leave Policy. Generally, the Student Leave Policy permits students to take a leave of absence for a full-semester, mini-semester, or for the time remaining in the semester during which the leave is taken. Students who take a Formal Leave of Absence (https://www.cmu.edu/policies/student-and-student-life/student-leave.html) drop all remaining courses for the semester and are unenrolled for the semester. International students must consult with the Office of International Education (https://www.cmu.edu/oie/) before considering this option due to visa implications.

*Parental Accommodation for Doctoral Students*

The university offers a Parental Accommodation for qualifying doctoral student parents to include up to four (4) weeks of time away from academic responsibilities with continued stipend support. This accommodation can be utilized within six months of the birth or placement of a child through adoption, foster care or legal guardianship. Gestational parents may utilize both the Short-Term Accommodation for Gestational Parents and the parental accommodation.

Careful planning and consultation is necessary given the unique contexts and requirements of each student's situation. Students will remain fully enrolled and will receive assistance in navigating the necessary planning and consultation processes.

*Financial Assistance for Student Parents*

Carnegie Mellon also offers the following options for financial assistance to students who become parents while enrolled:

**Interest Free Loan** – Any student who becomes a parent is eligible to apply for an interest-free parental loan (https://www.cmu.edu/student-affairs/dean/loans/) from the Office of the Dean of Students.

**Doctoral Stipend Continuation (Gestational Parents)** – Doctoral students who are the gestational parent and who receive an academic stipend funded by Carnegie Mellon are eligible to continue to receive stipend funding for up to six (6) weeks during a Short-Term Accommodation for Gestational Parents or during a Formal Leave of Absence. Continued academic stipend funding may be extended by two (2) weeks, for a total of eight (8) weeks, if an absence longer than six weeks is medically necessary.

**Doctoral Stipend Continuation (Non-gestational Parents)** – Doctoral students who receive an academic stipend funded by Carnegie Mellon and are becoming a parent by adoption, birth, or through guardianship are eligible to continue to receive stipend funding for up to four (4) weeks during a Short-Term Parental Accommodation.

## 12.4 Consensual Intimate Relationship Policy Regarding Undergraduate Students

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

This policy addresses the circumstances in which romantic, sexual or amorous relationships/interactions with undergraduate students, even if consensual, are inappropriate and

prohibited. The purpose of this policy is to assure healthy professional relationships. This policy is not intended to discourage consensual intimate relationships unless there is a conflicting professional relationship in which one party has authority over the other as in the policy.

# 13 Additional department and university policies/protocols

## 13.1 Verification of Enrollment

Enrollment Services is the only University office that can provide an official letter of enrollment, official transcript and enrollment verification.

Enrollment verification can be requested online through The HUB at:
    https://www.cmu.edu/hub/registrar/student-records/verifications/enrollment.html

## 13.2 Change of Address

Students should keep their current local address up-to-date in SIO. This supports a university initiative to have accurate living information for students for official program/department/college/university notices, the ability to facilitate wellness checks, ensure international students are in compliance with visa requirements, etc.

## 13.3 Employment Eligibility Verification

If you are receiving a stipend, are a TA, or are planning to have a position with CMU then Employment Eligibility Verification is required. Form I-9 must be completed within 3 business days of beginning work for any type of compensation (stipend or employment). Additional details are highlighted below. To ensure compliance with federal law, Carnegie Mellon University maintains the **Employment Eligibility Verification (I-9) Policy [pdf]** covering the university's I-9 and E-Verify requirements:

- Every individual receiving a stipend from CMU or employed by CMU must comply with the I-9 Policy by completing the Form I-9 within three business days following the first day of stipend start date/employment.
- Individuals who expect to work on a federally funded project are further responsible for submitting an E-Verify Processing Request Form to the Office of Human Resources if required.
- For more information, please see CMU's **Guidance for Completing the Form I-9 and E-Verify Requirements at CMU [pdf]**, or visit the Human Resources Service website to learn more about Form I-9 and E-Verify and to schedule an appointment to complete the Form I-9.

Students who fail to complete the Form I-9 in a timely manner may have stipend payments suspended.  If employed by the university, an individual who fails to timely complete the Form I-9 may be subject to disciplinary action up to and including termination of employment.

# 14 Financial Support

**Stipend and Tuition:** Support for the 2023-2024 year is as follows: stipend $2,958.33 per month, tuition $50,020 per year, and Activity Fees $947 per year. PhD students are paid semi-monthly with the first pay date on 9/15.

**Health Insurance:** In addition to the tuition and stipend support, if you elect to enroll in Carnegie Mellon University's Student Health Insurance Plan (SHIP), the University will cover 100 percent of the premium cost for your individual coverage under SHIP.  While you will have the opportunity to purchase partner, spouse or dependent coverage under the SHIP plan, the University's support will be limited individual coverage only.  Please note that if you wish to elect the required health

insurance coverage under an alternate plan, you will not be eligible for the University support referenced here.

In order to be eligible for the financial support, you must enroll in the SHIP program no later than August 15, 2023.  Please be advised that we will be verifying your enrollment with University Health Services prior to processing the insurance premium support.

### Travel/Conference Funding

Students who have new work to share should typically be able to attend at least one conference per year to present their results. In general, we expect the student's advisor (or research grant supporting the work to be presented) will support these costs. However, students in PNC and PSN whose advisors cannot support their travel can apply for limited funding from NI. Decisions will be based on student seniority and need. Applications should be submitted to Melissa Stupka.

Application Requirements:
- Conference name, location, dates
- Abstract of work to be presented
- Total cost estimate
- Requested NI support and source(s) of other funding
- Student CV, including a list of previous conferences attended with dates
- Advisor statement explaining why they cannot support the full travel costs

Conference Funding is a funding application process provided by GSA and the Provost's Office for students, student work groups or groups to attend a conference, whether as a participant or as a presenter. The process is 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/index.html

### Computer Funding

First year PNC/PSN Students are eligible for a one-time purchase of a computer for education and research purposes.  Students will be able to select from 3 standard options.  To request a computer purchase, students should contact Melissa Stupka.

Standard Computer Models:
- Dell Latitude 7430 (includes 3 years pro support)
- 13" MacBook Pro (includes AppleCare+)
- 10.9″ iPad Air Wi-Fi 256 GB (includes AppleCare+, Apple Pencil, and choice of Magic or Smart Folio Keyboard)

If none of these options will suit your needs, you can purchase a computer and be reimbursed up to $1000. You will need to have the computer approved by Melissa Stupka before making any purchases.  We may not be able to process the reimbursement if you fail to get prior approval.

# 15 Appendix A - Highlighted University Resources for Graduate Students

**Appendix A**
**2023-2024**
**Highlighted University Resources for Graduate Students**

Note: The following pages are meant to broadly include only some of the resources available to graduate students.  It is not an exhaustive appendix of resources, and students are strongly encouraged to visit the various websites linked below for the most up-to-date information.

# Table of Contents

# Key Resources for Graduate Student Support

## Office of Graduate and Postdoctoral Affairs

https://www.cmu.edu/graduate

graded@cmu.edu

The Office of Graduate and Postdoctoral Affairs provides university-wide support for all graduate students and academic programs, with a focus on supporting graduate student success at Carnegie Mellon.  Examples of resources offered through the Office of Graduate and Postdoctoral Affairs include, but are not limited to:

- Website with university resources, contact information for CMU programs and services, possible financial assistance and potential funding opportunities, and various procedural and policy information

- Newsletter to all graduate students with information on activities, resources, and opportunities

- Professional development seminars and workshops, and various programming and events for the graduate student community

The Office of Graduate and Postdoctoral Affairs also works directly with the colleges and departments on issues related to graduate students and serve as a resource for developing policy and procedures.  The Office of Graduate and Postdoctoral Affairs partners with many other offices and organizations, such as the Graduate Student Assembly, to support the holistic graduate student educational experience.

## Office of the Dean of Students

https://www.cmu.edu/student-affairs/dean/

The Office of the Dean of Students provides central leadership of the metacurricular experience at Carnegie Mellon including the coordination of student support.  Graduate students will find the enrollment information for Domestic Partner Registration and Parental Accommodations in the Office of the Dean of Students or on their website. This Office also manages the Student Emergency Support Funding process. There are currently three forms of support funding for enrolled students: emergency student loans, student parental loans, and the Tartan Emergency Support Fund. Inquiring students will be provided with additional information about the various types of funding during a consultation meeting with a member of the Dean of Students team. Tuition costs are not eligible for Student Emergency Support funding.

College Liaisons and the Student Support Resources team serve as additional resources for graduate students. College Liaisons are senior members of the Division of Student Affairs who work with departments and colleges addressing student concerns across a wide range of issues. College Liaisons are identified on the Important Contacts list in Student Information Online (SIO). The Student Support Resources team offers an additional level of support for students who are navigating a wide range of life events. Student Support Resources staff members work in partnership with campus and community resources to provide coordination of care and support appropriate to each student's situation.

## The Division of Student Affairs

The Division of Student Affairs includes (not an exhaustive list):

- Athletics, Physical Education and Recreation
- Career and Professional Development Center (CPDC)
- Center for Student Diversity and Inclusion
- Cohon University Center
- Counseling & Psychological Services (CaPS)
- Dining Services
- Office of Community Standards and Integrity (OCSI)
- Office of Student Leadership, Involvement, and Civic Engagement (SLICE)
- University Health Services (UHS)
- Wellness Initiatives

## Center for Student Diversity & Inclusion

https://www.cmu.edu/student-diversity/

Diversity and inclusion have a singular place among the values of Carnegie Mellon University. The Center for Student Diversity & Inclusion actively cultivates a strong, diverse and inclusive community capable of living out these values and advancing research, creativity, learning and development that changes the world.

The Center offers resources to enhance an inclusive and transformative student experience in dimensions such as access, success, campus climate and intergroup dialogue. Additionally, the Center supports and connects historically underrepresented students and those who are first in their family to attend college in a setting where students' differences and talents are

appreciated and reinforced, both at the graduate and undergraduate level. Initiatives coordinated by the Center include, but are not limited to:

- First generation/first in family to attend college programs

- LGBTQ+ Initiatives

- Race and ethnically focused programs, including Inter-University Graduate Students of Color Series (SOC) and PhD SOC Network

- Women's empowerment programs, including Graduate Women's Gatherings (GWGs)

## Assistance for Individuals with Disabilities

https://www.cmu.edu/disability-resources/

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical, digital, and programmatic access to ensure that students with disabilities have equal access to their educational experience.  The Office works to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Section 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 physical, sensory, cognitive, or emotional disabilities are encouraged to self-identify with the Office of Disability Resources and request needed accommodations. Any questions about the process can be directed to access@andrew.cmu.edu, or call (412) 268- 6121.

## Eberly Center for Teaching Excellence & Educational Innovation

https://www.cmu.edu/teaching/

The Eberly Center offers a wide variety of confidential, consultation services and professional development programs to support graduate students as teaching assistants or instructors of record during their time at Carnegie Mellon University and as future faculty members at other institutions. Regardless of one's current or future teaching context and duties, Eberly's goal is to disseminate evidence-based teaching strategies in ways that are accessible and actionable. Programs and services include campus-wide Graduate Student Instructor Orientation events and our Future Faculty Program, both of which are designed to help participants be effective and efficient in their teaching roles. The Eberly Center also assists departments in creating and conducting customized programs to meet the specific needs of

their graduate student instructors. Specific information about Eberly Center support for graduate students is found at:

## Graduate Student Assembly

The Graduate Student Assembly (GSA) is the branch of Carnegie Mellon Student Government that represents and advocates for the diverse interests of all graduate students at CMU. GSA is composed of representatives from the different graduate programs and departments who want to improve the graduate student experience at the different levels of the university. GSA is funded by the Student Activities Fee from all graduate students. GSA passes legislation, allocates student activities funding, advocates for legislative action locally and in Washington D.C. on behalf of graduate student issues and needs, and otherwise acts on behalf of all graduate student interests. GSA's recent accomplishments are a testament to their making a difference, and steps to implementing the vision laid out by the strategic plan.

GSA offers an expanding suite of social programming on and off-campus to bring graduate students from different departments together and build a sense of community. GSA is the host of the Graduate Student Lounge on the 3rd floor of the Cohon University Center. GSA also maintains a website of graduate student resources on and off-campus. GSA continues to rely on student feedback to improve the graduate student experience at CMU. Feel free to contact them at gsa@cmu.edu to get involved, stop by their office in the Cohon University Center Room 304 or become a representative for your department.

## Office of International Education (OIE)

Carnegie Mellon hosts international graduate and undergraduate students who come from more than 90 countries. The Office of International Education (OIE) is the liaison to the University for all non-immigrant students and scholars, as well the repository for study abroad opportunities. OIE provides many services including: advising on personal, immigration, study abroad, academic, and social and acculturation issues; presenting programs of interest such as international career workshops, tax workshops, and cross-cultural and immigration workshops; international education and statistics on international students in the United States; posting pertinent information to

students through email and the OIE website and conducting orientation and pre-departure programs.

## Veterans and Military Community

https://www.cmu.edu/veterans/

Military veterans are a vital part of the Carnegie Mellon University community. Graduate students can find information on applying for veteran education benefits, campus services, veteran's groups at CMU, and non-educational resources through the Veterans and Military Community website. There are also links and connections to veteran resource in the Pittsburgh community. The ROTC and Veteran Affairs Coordinator can be reached at urovaedbenefits@andrew.cmu.edu or 412-268-8747.

## Carnegie Mellon Ethics Hotline

https://www.cmu.edu/hr/resources/ethics-hotline.html

The health, safety and well-being of the university community are top priorities at Carnegie Mellon University. CMU provides a hotline that all members of the university community should use to confidentially report suspected unethical activity, violations of university policy, or violations of law. Students, faculty and staff can anonymously file a report by calling 1-844-587-0793 or visiting https://cmu.ethicspoint.com/. All submissions are reported to appropriate university personnel and handled discreetly.

**The hotline is NOT an emergency service. For emergencies, call University Police at 412-268-2323.**

## Policy Against Retaliation

It is the policy of Carnegie Mellon University to protect from retaliation any individual who makes a good faith report of a suspected violation of any applicable law or regulation, university Policy or procedure, any contractual obligation of the university, and any report made pursuant to the Carnegie Mellon University Code of Business Ethics and Conduct.

Additional details regarding the Policy Against Retaliation are available at:

https://www.cmu.edu/policies/administrative-and-governance/whistleblower.html

# Key Offices for Academic & Research Support

## Computing and Information Resources

https://www.cmu.edu/computing/

Computing Services maintains and supports computing resources for the

campus community, including the campus wired and wireless networks, printing, computer labs, file storage, email and software catalog. As members of this community, we are all responsible for the security of these shared resources. Be sure to review the Safe Computing (https://www.cmu.edu/computing/safe/) section and the University Computing Policy (https://www.cmu.edu/policies/information-technology/computing.html)

Visit the Computing Services website (https://www.cmu.edu/computing/) to learn more. For assistance the Computing Services Help Center is available at 412-268-4357 (HELP) or ithelp@cmu.edu.

## Student Academic Success Center

https://www.cmu.edu/student-success/

The Student Academic Success Center's (SASC) work to support success focuses on creating spaces for students to engage in their coursework and approach to learning through many group and individual program options.  SASC supports student success by providing academic coaching, subject-specific tutoring, effective communication strategies, accommodations for students with disabilities, and language support for multilingual learners. SASC engages with faculty and staff to improve the coordination and professional development for academic advisors. Visit the SASC website for more information about services offered in areas such as communication and language support; language and cross-cultural support; and learning support.

## University Libraries

https://www.library.cmu.edu/

The University Libraries offers a wide range of information, resources, and services supporting graduate students in coursework, research, teaching, and publishing. The library licenses and purchases books, journals, media, and other needed materials in various formats. Library liaisons, consultants, and information specialists provide in-depth and professional assistance and advice in all-things information, including:

- Locating and obtaining specific resources
- Providing specialized research support
- Advanced training in the use and management of data

Sign up for workshops and hands-on topic-specific sessions such as data visualization with Tableau, cleaning data with OpenRefine, and getting started with Zotero. Weekly drop-in hours for Digital Humanities and for Research Data Research Management are scheduled during the academic year. Start at

the library home page to find the books, journals, and databases you need; to identify and reach out to the library liaison in your field; to sign up for scheduled workshops; and to connect with consultants in scholarly publishing, research data management, and digital humanities.

## Research at CMU

https://www.cmu.edu/research/

The primary purpose of research at the university is the advancement of knowledge in all fields in which the university is active. Research is regarded as one of the university's major contributions to society and as an essential element in education, particularly at the graduate level and in faculty development. Research activities are governed by several university policies. Guidance and more general information are found by visiting the Research at Carnegie Mellon website.

## Office of Research Integrity & Compliance

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

The Office of Research Integrity & Compliance (ORIC) is designed to support research at Carnegie Mellon University. The staff work with researchers to ensure research is conducted with integrity and in accordance with federal and Pennsylvania regulation. ORIC assists researchers with human subject research, conflicts of interest, responsible conduct of research, export controls, and institutional animal care & use. ORIC also provides consultation, advice, and review of allegations of research misconduct.

# Key Offices for Health, Wellness & Safety

## Counseling & Psychological Services

https://www.cmu.edu/counseling/

Counseling & Psychological Services (CaPS) affords the opportunity for students to talk privately about academic and personal concerns in a safe, confidential setting. An initial consultation at CaPS can help clarify the nature of the concern, provide immediate support, and explore further options if needed. These may include a referral for counseling within CaPS, to another resource at Carnegie Mellon, or to another resource within the larger Pittsburgh community. CaPS also provides workshops and group sessions on mental health related topics specifically for graduate students on campus. CaPS services are provided at no cost. Appointments can be made in person, or by telephone at 412-268-2922.

### Health Services

University Health Services (UHS) is staffed by physicians, advanced practice clinicians and registered nurses who provide general medical care, allergy injections, first aid, gynecological care, and contraception as well as on-site pharmaceuticals. The CMU Student Insurance Plan covers most visit fees to see the physicians and advanced practice clinicians & nurse visits. Fees for prescription medications, laboratory tests, diagnostic procedures and referral to the emergency room or specialists are the student's responsibility and students should review the UHS website and their insurance plan for detailed information about the university health insurance requirement and fees.

UHS also has a registered dietician and health promotion specialists on staff to assist students in addressing nutrition, drug and alcohol and other healthy lifestyle issues. In addition to providing direct health care, UHS administers the Student Health Insurance Program. The Student Health Insurance plan offers a high level of coverage in a wide network of health care providers and hospitals. Appointments can be made by visiting UHS's website, walk-in, or by telephone, 412-268-2157.

### Campus Wellness

At Carnegie Mellon, we believe our individual and collective well-being is rooted in healthy connections to each other and to campus resources. The university provides a wide variety of wellness, mindfulness and connectedness initiatives and resources designed to help students thrive inside and outside the classroom.

### Religious and Spiritual Life Initiatives (RSLI)

Carnegie Mellon is committed to the holistic growth of our students, including creating opportunities for spiritual and religious practice and exploration. RSLI has relationships with local houses of worship from various traditions and many of these groups are members of CMU's Council of Religious Advisors. They also offer programs and initiatives that cross traditional religious boundaries in order to increase knowledge of and appreciation for the full diversity of the worldview traditions. RSLI staff are available to support students across the spectrum of religious and spiritual practice and would be more than happy to help you make a connection into a community of faith during your time at CMU.

## University Police

https://www.cmu.edu/police/

x2323

The University Police Department is located at 4551 Filmore Street. The department's services include police patrols and call response, criminal investigations, fixed officer and foot officer patrols, event security, and crime prevention and education programming as well as bicycle and laptop registration. Visit the department's website for additional information about the staff, emergency phone locations, crime prevention, lost and found, fingerprint services, and annual statistic reports. Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault, and fire safety policies. The report also contains statistics about the number and type of crimes committed on the campus and the number and cause of fires in campus residence facilities during the preceding three years. Graduate students can obtain a copy by contacting the University Police Department at x2323. The annual security and fire safety report is also available online at:

https://www.cmu.edu/police/annualreports/

## Shuttle and Escort Services

https://www.cmu.edu/parking/transport/

Parking and Transportation coordinates the Shuttle Service and Escort Service provided for CMU students, faculty, and community. The Shuttle & Escort website has full information about these services, stops, routes, tracking and schedules.

# The WORD

The WORD is Carnegie Mellon University's online student handbook and serves as the foundation for the department (and sometimes college) handbook. The WORD contains university-wide academic policy information and resources, community policies and resources, and describes the university level procedures used to review possible violations of these standards. It is designed to provide all students with the tools, guidance, and insights to help you achieve your full potential as a member of the Carnegie Mellon community. Graduate students are encouraged to bookmark this site and refer to it often. University policies can also be found in full text at: https://www.cmu.edu/policies/.

# 16 Appendix B - Departmental Forms and Guides

- First Year Milestone Form
- Second Year Milestone Form
- Thesis Proposal Form
- Thesis Completion Form
- Thesis Title Page Format

# Carnegie Mellon University
## Neuroscience Institute

115 Mellon Institute
4400 Fifth Avenue
Pittsburgh, Pennsylvania 15213-2683
Phone: 412-268-4000 | Fax: 412-268-5060

**First Year Research Requirement Completion Form**

**Instructions**

The advisor must complete and turn in this form immediately upon the student's successful completion of the first year research requirement.

Today's Date  _____

Student Name (please print) _____

Date student completed first year research requirement _____

MM/DD/YYYY

Advisor Signature _____ Date _____

Advisor Name (please print) _____

Please turn in completed form to Melissa Stupka in MI 116C.

# Carnegie Mellon University
## Neuroscience Institute

**Second Year Research Requirement Completion Form**

**Instructions**
The advisor must complete and turn in this form immediately upon the student's successful completion of the second year research requirement.

Today's Date  _____

Student Name (please print) _____

Date student completed second year research requirement _____
MM/DD/YYYY

Advisor Signature _____ Date _____

Advisor Name (please print) _____

Please turn in completed form to Melissa Stupka in MI 116C.

# Carnegie Mellon University
# Neuroscience Institute

**Thesis Proposal Completion Form**

**Instructions**
The advisor must complete and turn in this form immediately upon the student's successful thesis proposal presentation.

Today's Date _____

Student Name (please print) _____

Date student completed thesis proposal requirements _____
MM/DD/YYYY

Advisor Signature _____ Date _____

Advisor Name (please print) _____

Please turn in completed form to Melissa Stupka in MI 116C.


-----------------------------------------------------Office Use Only---------------------------------------------------------

Date doctoral contract submitted to Reigstrar's Office        _____/_____/_____

Submitted by _____

**Thesis Defense Completion Form**

**Instructions**
The advisor must complete and turn in this form immediately upon the student's successful thesis defense presentation and submission of final dissertation document.

Today's Date  _____

Student Name (please print) _____

Title of Dissertation _____

Date student completed thesis defense requirements _____
MM/DD/YYYY

Date student completed final dissertation document _____
MM/DD/YYYY

Advisor Signature _____ Date _____

Advisor Name (please print) _____

Department Head Signature _____ Date _____

Dean Signature _____ Date _____

Please turn in completed form to Melissa Stupka in MI 116C.

# Thesis Title Page Format

# Title

Your Name

Month Year

Neuroscience Institute
(If doing a joint program also include that Department/College here)
Dietrich College of Humanities and Social Sciences
Carnegie Mellon University
Pittsburgh, PA 15213

Thesis Committee:
Name, Chair
Name
Name
Name
External Name, University

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy.

Copyright Notation