Carnegie Mellon University
The Robotics Institute

THE ROBOTICS DOCTORAL PROGRAM
http://www.ri.cmu.edu/education/academic-programs/doctoral-robotics-program/

HANDBOOK
2021-2022

The Robotics Institute
5000 Forbes Avenue
Carnegie Mellon University
Pittsburgh, PA 15213

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Note: The information contained in this graduate handbook focuses on the resources and locations available at the Carnegie Mellon Pittsburgh Campus.

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Welcome

We are proud of the open, friendly culture that has been the hallmark of the Robotics Institute since its inception. Faculty keep their office doors open to encourage informal meetings with students and colleagues. Graduate students organize frequent department-wide social activities, ranging from Friday afternoon get-togethers to rock climbing trips. And the department's strong support for collaboration creates an ideal environment for word-class robotics research.

The Robotics Institute is an intellectually diverse, multi-disciplinary department. The Institute's faculty and students come from a wide variety of backgrounds and represent many unique areas of expertise. This diversity stems from the multi-disciplinary nature of the robotics, which encompasses aspects of computer science, mechanical engineering, electrical engineering, psychology, and many other disciplines.

The Robotics Institute is an international leader in robotics education. The world's first Robotics PhD program was founded here in 1988 with the goal of providing graduate students with the knowledge, experience, and skills to become the next leaders in robotics research and education. Graduates from the PhD program have taken on roles ranging from faculty in top universities, to designing and controlling Mars rovers, to develop self-driving cars.

Since the start of the Robotics PhD program, we have steadily grown and expanded our programs of study. Today, we offer diverse opportunities at all levels of education - from masters programs and an undergraduate minor to K-12 where our renowned programs, workshops, and summer classes inspire and educate the next generation of roboticists.

Even when robotics technologies were relatively primitive, their potential role in boosting the productivity and competitiveness of the United States was foreseen in the evolving global marketplace. The Robotics Institute at Carnegie Mellon University was established in 1979 to conduct basic and applied research in robotics technologies relevant to industrial and societal tasks. Seeking to combine the practical and the theoretical, the Robotics Institute has diversified its efforts and approaches to robotics science while retaining its original goal of realizing the potential of the robotics field.

While this handbook is 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 the Graduate and Postdoc Affairs, the Office of the Dean of Student Affairs and others are included in Appendix A of this handbook.

Doctor of Philosophy (PhD)

The world's first doctoral program in robotics prepares graduate students to be tomorrow's leaders in robotics research.

> The CNBC option for Robotics Ph.D. students allows them to combine intensive training in RI with a broad exposure to cognitive science, neural computation, and other disciplines that touch on problems of higher brain function.

> Center for the Neural Basis of Cognition Option The Center for the Neural Basis of Cognition offers an interdisciplinary training program operated jointly with affiliated doctoral programs at Carnegie Mellon University and the University of Pittsburgh. The affiliated programs include Robotics, Computer Science, Psychology, and Statistics at Carnegie Mellon, and Mathematics, Psychology, and the Program in Neuroscience at the University of Pittsburgh.

Students must also be separately admitted to the CNBC program; they fulfill the same basic requirements as regular Ph.D. students in Robotics but have additional requirements to fulfill.

Graduate Student Handbook

Carnegie Mellon University (https://www.cmu.edu/about/mission.html)

Vision

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

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.

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 ombudsman, 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 application of Title IX, including to admission and employment decisions, the sexual misconduct grievance procedures and process, including how to file a report or a complaint of sex discrimination, how to file a report of sexual harassment, and how the university responds to such reports is available at www.cmu.edu/title-ix. The Title IX coordinator may be reached at 5000 Forbes Ave., 140 Cyert Hall, Pittsburgh, PA 15213; 412-268-7125; or tix@cmu.edu.

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/.

University Policies and Expectations

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

    The Word/Student Handbook: www.cmu.edu/student-affairs/theword//index.html
    Academic Integrity Policy: https://www.cmu.edu/policies/student-and-student-life/academic-
        integrity.html
    University Policies Website: www.cmu.edu/policies/
    Office of Graduate and Postdoc Affairs: http://www.cmu.edu/graduate/policies/index.html
    Graduate Education Website: http://www.cmu.edu/graduate/policies/index.html

Should you need any of the above resources in a different format, you may contact the Graduate Program Coordinator, Suzanne Muth.

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

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.

Departmental Resources

Department Personnel

- <u>Martial Hebert</u>, Dean of School of Computer Science
- <u>Srinivasa G. Narasimhan</u>, Interim Director of the Robotics Institute
- <u>David Wettergreen</u>, Associate Director for Education, Director of the Ph.D. Program
- <u>George Kantor</u>, Director of the Masters Program
- <u>John Dolan</u>, Director of the M.Sc. Robotic Systems Development
- <u>Kris Kitani</u>, Director of the M.Sc. in Computer Vision Program
- <u>Hartmut Geyer</u>, Chair of the Graduate Program Committee
- <u>Katia Sycara</u>, Associate Director for Faculty
- <u>Aaron Steinfeld</u>, Head of Faculty Mentoring
- <u>Cheryl Wehrer</u>, Associate Director for Finance and Administration
- <u>Suzanne Muth</u>, Graduate Program Manager
- <u>Sarah Conte</u>, Academic Program Manager
- <u>Barbara Jean Fecich</u>, Academic Program Manager
- <u>Robotics Faculty</u>
- <u>Robotics Staff</u>

- Graduate Student Department/College Ombudsman
  <u>David Wettergreen</u> and <u>George Kantor</u> serve as ombudsman's for graduate students to assist with difficult academic or personal situations where a confidential sounding board and/or an intermediary can be helpful. Examples of situations where students are encouraged to seek advice or assistance include:

  - Difficulty in communications with advisor, particularly when those difficulties may lead to considering changing advisors or leaving the program
  - Conflict with other group members that is difficult to resolve within the group
  - Issues related to diversity or the departmental climate for those in groups who are historically underrepresented in science
  - Personal concerns that interfere significantly with the ability to make timely progress in research or program requirements. These might be due to health, family or financial challenges
  - Additionally, students may confer with the college liaison, Angela Lusk, alusk@andrew.cmu.edu, or the university graduate student ombudsman, Amy Burkert, ak11@andrew.cmu.edu, on issues of process or other concerns as they navigate conflicts. Amy Burkert is the Vice Provost for Education.

- <u>Work Life Resources for Students, Staff and Faculty</u>

Departmental Information

Department Directory

Mail
The correct mailing address to use is: Your Name, The Robotics Institute, 4000 B Newell Simon Hall, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh PA 15213.

Graduate Student Travel
When funding is available, we support graduate student travel to present papers at refereed conferences, to attend meetings required by research sponsors, or to attend other functions as directed by the faculty.

Graduate student travel must be approved in advance by the student's advisor. For travel to a conference, approval must be obtained before the paper is submitted to the conference; for other travel, approval must be obtained before the student can make a commitment to attend. You can download a form for requesting permission to travel.

It is generally expected that the student's advisor, or other faculty member overseeing the travel, will arrange for funding before granting approval for the travel. If that is impossible, your department may have funds available. Funding must be arranged before the travel request can be approved.

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

If there are visa concerns for graduate student travel, check the U.S. State Department's Travel & Living Abroad page.

Copy, Printing, Faxing and Phone
Conference & Classrooms
Conference & Classroom Audio/Video Support
Creative Media
    The Robotics Creative Media is an online resource available to students who need information regarding HD video production, audio production, design & print, such as business cards, photography, event materials and specialty items.

Emergency Situations
RoboOrg – The Robotics Student Organization
SCS Computing Facilities
Who to See for What

Department Approach to Press and Media Relations
To assure consistency in all communications and to maximize external visibility to target audiences the marketing and communication staff works together to coordinate key messages and activities involving publicity.

The director of media relations in the SCS Dean's Office, Byron Spice, is the point-of-contact between news media and the School of Computer Science community, including faculty, students, administrators and staff. He can assist with strategic planning for publicity, interview preparation, and (depending on the specific project or issue) may assist in developing news stories or multi-media for the SCS website and social media channels.

Women@SCS
Women@SCS' mission is to create, encourage, and support women's academic, social and professional opportunities in the computer sciences and to promote the breadth of the field and its diverse community. The Women@SCS Advisory Committee consists of undergraduate students, graduate students, and faculty within the School of Computer Science.
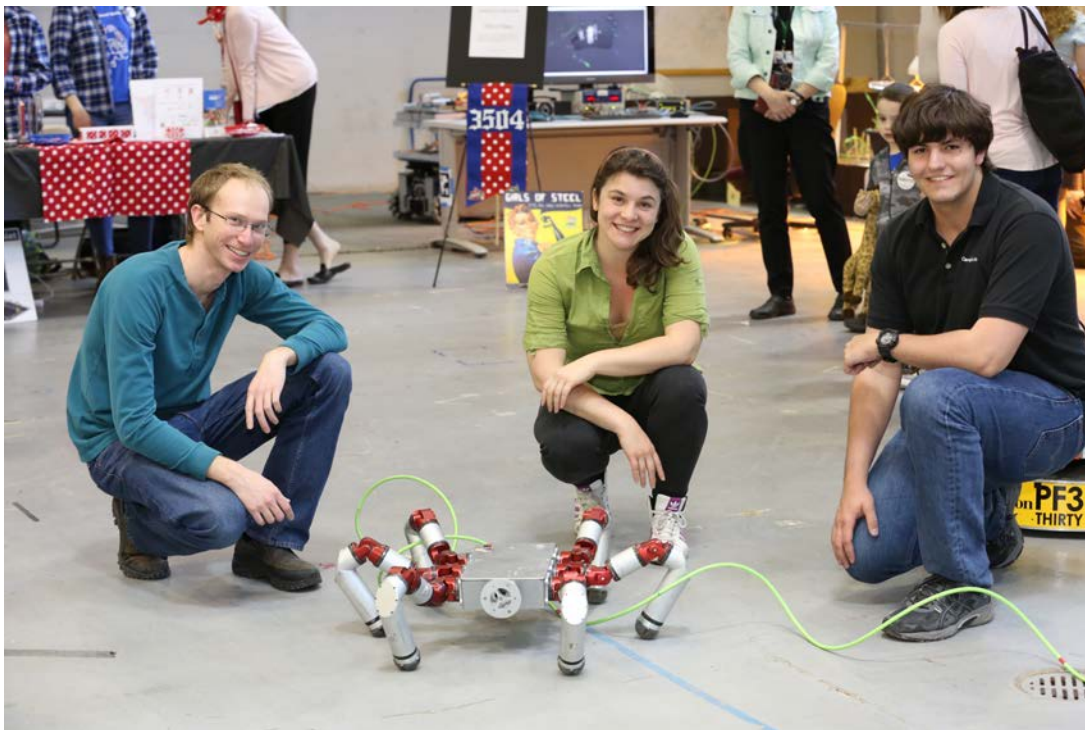
Degree Attainment

Statute of Limitations

As outlined in the Doctoral Student Status Policy, 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.

Full-time/Part-time Status Requirements

It is expected that Doctoral students will maintain full-time status throughout the program. International students must be full-time status for all semesters and need to consult the Office of International Education if they may not be in full-time status. Part-time status would need to be approved by the Chair of the Doctoral Program in Robotics, David Wettergreen.

Department Registration Process / Procedures

If is the full responsibility of the student to register for courses. Each semester students should consult with their advisor/s before registering for courses.

Course of Study

Overview

This document defines the degree requirements for candidates in the Ph.D. Program in Robotics in the School of Computer Science at Carnegie Mellon University. The program is designed so that a well-prepared student can complete the doctoral degree in four to five years. The Ph.D. program requires completion of:

• Course Qualifiers (Core and Specialized)

• Research Qualifier

• Thesis

The Course and Research Qualifiers are performed concurrently and are designed to take approximately equal amounts of time during the student's first two years. The doctoral

dissertation and its associated research will normally require two to three further years for completion.

The exact degree requirements for a student in the program are as defined in the Course of Study as of the date that student first enrolls in the Robotics Ph.D. Program. Any subsequent changes to the Course of Study may optionally be selected by the student, or the student may choose to retain the previous requirements.

Occasionally, it is appropriate for a student to deviate slightly from the requirements as defined in the Course of Study. A student may request approval for a specific proposed alternative from the Chair of the Robotics Ph.D. Program. Generally, the Robotics Program Committee will review the request and make a recommendation to the Chairperson.

Preparation

The Robotics Doctoral Program accepts strongly motivated and exceptionally talented students from a wide range of educational backgrounds. It is each student's personal responsibility to arrive with, or to acquire rapidly thereafter, basic understanding (at the level of an introductory undergraduate course) in the following areas:

Mathematics: calculus, linear algebra, numerical analysis, probability and statistics

Computer Science: programming, data structures, algorithms

Physics and Engineering: mechanics, dynamics, electricity and magnetism, optics

On request, the faculty will advise incoming students about individually appropriate alternative ways to satisfy these requirements, such as taking an undergraduate course, serving as a teaching assistant in an undergraduate course, or self-study by guided reading and discussion.

Course Qualifiers

Each student must complete the two course qualifiers in:

Core Courses, consisting of one course from each of four core areas

Specialized Courses, comprising 48 units of coursework (typically four graduate courses) in a specialized area defined by the student

Courses must be passed with a grade of B-, or better, to fulfill, or contribute to, completion of a course qualifier.

All of the necessary study and evaluation within the Robotics Ph.D. Program are contained in the Course Qualifiers. There are no other examination requirements for the Doctoral degree in Robotics. Students are encouraged to attend additional courses if they and their advisor agree it would be valuable, but such courses are not required for the Robotics degree and may be substituted for required courses only if approved by the Chair of the Robotics Program. Seminars are valuable educational experiences, but do not count for credit toward a course qualifier.

Students in the Robotics Ph.D. Program must register with the university and enroll for credit for all courses taken as part of fulfilling the Course Qualifiers.

Core Course Qualifier

Students must pass four Core Courses, one course from each of the following four Core Areas:

Perception: vision, image sensors, range data interpretation, tactile and force sensors, inertial guidance, and other sensors. Core courses in Perception are 16-720 Computer Vision (section A or B) and 16-722 Sensing and Sensors.

Cognition: artificial intelligence for robotics, knowledge, representation, planning, task scheduling, and learning. Core courses in Cognition are 15-780 Artificial Intelligence, 10-701 Machine Learning and 10-715 Advanced Machine Learning.

Action: kinematics, dynamics, control, manipulation, and locomotion. Core courses in Action are 16-741 Mechanics of Manipulation and 16-711 Kinematics, Dynamic Systems, and Control.

Math Foundations: optimal estimation, differential geometry, computational geometry, and operations research. The one core course in this area is 16-811 Math Fundamentals for Robotics.

Specialized Course Qualifier

The Specialized Course qualifier is a sequence of courses chosen by the student to enhance the Core Course subject matter by adding greater depth a particular area. These specialization courses must total at least 48 units of graduate coursework. In this way, the foundational science component of the program is complemented by studies that keep pace with new developments and current topics. The courses should have coherence in subject matter. They may be directly related to the student's thesis research but are not restricted to that topic.

The Specialized Course Qualifier must be defined by the student in conjunction with their Ph.D. Advisor and then approved by the Chair of the Ph.D. Program. Typically the student will identify 4 graduate courses that relate to their interests and will complete and submit a Specialized Qualifier approval form. Students are strongly encouraged to seek approval before completing courses. Any course completed prior to approval is at risk and may not be deemed eligible for their qualifier.

The Specialized Qualifier courses must total at least 48 units, usually four full-semester graduate courses. The following guidelines cover the usually applicable constraints and will help in composing a Specialized Qualifier sequence.

- Graduate level (600 - 800-level) courses only

- No more than 12 units of non-doctoral (600-level) graduate courses

- No more than 12 units of courses completed by waiver

- No more than 12 units of project-only courses

- No more than 12 units of independent study

  (Independent study courses must include syllabus, schedule, assignments, and evaluation criteria. Syllabus submitted with the SQ form.)

- Core courses can be used in the Specialized Qualifier sequence, but only in addition to 48-units of Core Qualifier courses

- Teaching Assistantships cannot be included as Specialized Qualifier courses

Students who have completed graduate courses prior to entering the Ph.D. program and have acquired relevant knowledge and experience that is directly related to their area of specialization may request that some portion of their Specialized Qualifier be waived. For graduate courses completed at Carnegie Mellon, the Chair of Ph.D. Program will review the waiver, this includes students matriculating from the Robotics Masters programs who may have completed courses eligible for waiver as Core or Specialized courses. For graduate courses completed at any other institution, a subject area expert from the faculty will be assigned for the waiver review.

Waivers

At Carnegie Mellon courses can only be credited to a single degree; additionally transfer credit for graduate courses completed at other institutions is not granted in robotics. However if students possess all of the knowledge conferred and evaluated in a particular course, they may apply for a waiver to be released from the requirement of enrolling and completing the course.

On the basis of previous experience and knowledge students may apply, by completing a waiver request form, to waive any course. The Chair of the Ph.D. Program will then assign a suitable faculty member to evaluate the request, typically the relevant course instructor or an expert on the topic. The faculty member will then conduct an evaluation which may include oral examination, proctoring of course quizzes or exams including final exams, assigning course exercises, assignments or projects, or any combination of these. They will assess the extent and quality of knowledge and its sufficiency relative to the course objectives and requirements.

In some cases, the faculty may determine that a student has demonstrated significant knowledge of the research area, but not sufficient to waive the course requirement entirely. In such cases, the faculty may grant a conditional waiver, contingent upon additional work, such as successfully acting as teaching assistant in the course or completing some designated project. If a student disagrees with the outcome of the waiver application, he or she may petition the Robotics Program Committee to review the case.

Research Qualifier

The Research Qualifier examines the skills that are important for every researcher to possess including scholarly research, speaking, writing, and teaching. The Research Qualifier typically requires half of the student's time and effort for two years and is to be completed concurrently with the Course Qualifiers. The primary component of the Research Qualifier is supervised research under the guidance of a faculty member who serves as the student's advisor. In addition, the research qualification process includes serving as a teaching assistant, writing a research paper, and presenting a technical talk.

To oversee this process, the student forms a Research Qualifier Committee consisting of three faculty members and one Robotics Ph.D. student who has completed his or her second year of study. One faculty committee member must hold a primary appointment in Robotics. The faculty members should include the student's advisor(s) and one faculty member who is not participating in the student's research. Forms to verify completion of the parts of the Research Qualifier must be filled out by each member of the Research Qualifier Committee (with the exception of the Teaching requirement, which must be filled out by the instructor of the course for which the student serves as teaching assistant).

It is the student's responsibility to ensure that reviews are completed and submitted by the relevant deadline.

The Research Qualifier comprises four components:

Research Skills: The ability to create, explore, refine, and test new ideas in robotics. Students are expected to demonstrate awareness of previous work in their area of research, depth of insight into the problem, creativity in approaching the problem, and substance of results obtained.

Speaking: The ability to communicate in oral presentation. Students are expected to demonstrate the ability to present technical material to a technical audience clearly and succinctly. The presentation must be made at a venue open to the public. Ideally, the Research Qualifying Committee will be in attendance, but committee members may designate proxies, subject to approval by the Program Chair, to evaluate the presentation.

Writing: The ability to communicate in technical writing. A student is expected to produce a conference-length, or longer, paper, in which he/she is the sole, or the primary, author plus a one page executive summary in which he/she is the sole author. The paper should demonstrate a style, organization and clarity that enables researchers in the field to comprehend the problem, method, and results of the research. Students who have written papers prior to entering the Robotics Program may submit them for evaluation, provided they meet the above criteria.

Teaching: The experience of teaching in a classroom environment. This includes demonstration of as many as possible of the following: lecturing, recitation instruction, homework and exam design, grading, office hours, curriculum design. Each student must serve as a teaching assistant in two (2) courses relevant to the Robotics Program. Allowable courses will be defined by the Chair of the Ph.D. Program. Students may arrange to serve as teaching

assistant (TA) by contacting the Program Coordinator at the beginning of the semester before the semester in which the student will act as a TA. The student is expected to spend on average 10-15 hours per week or about one quarter of their time on teaching. The instructor should provide feedback to the student concerning the quality of the student's teaching. The instructor should report to the Program Coordinator his or her evaluation of whether the student has carried out the TA activities successfully.

Note that the State of Pennsylvania requires proficiency in English to act as a teaching assistant. Non-native speakers must be evaluated at the Language Support in the Student Academic Success Center and either Pass or Restricted One on their ITA examination. It is the student's responsibility to achieve this proficiency in time (by their second year) to complete their required TA assignments (by their third year).

Master's Writing and Speaking

Students completing the Master of Science in Robotics (research masters) at Carnegie Mellon University who intend to matriculate into the Ph.D. program may optionally compose their M.S. thesis committee to meet the requirements of the Ph.D. research committee, as described in the Research Qualifier. Upon successfully completing their Writing and Speaking requirements for their M.S. they may waive the Writing and Speaking requirements for their Ph.D. They cannot be done retroactively (a full research qualifier committee must conduct their M.S. thesis examination) and the students must still complete the Ph.D. Research Skills and Teaching components.

Thesis

The doctoral thesis represents a novel and significant contribution to the state of art in robotics. Researching, writing and presenting a thesis is intended to occupy approximately two to three years of activity, with these specific parts:

1. Thesis Proposal

2. Dissertation

3. Oral Defense of the Thesis

The evaluation of all three of these components must be performed by the Robotics faculty, as represented by the student's Thesis Committee. The committee will consist of at least four members: a minimum of three from Carnegie Mellon, at least two of whom must be faculty members affiliated with the Robotics Institute (at least one faculty member with a primary appointment in Robotics) and at least one qualified researcher who is external to Carnegie Mellon. The student's advisor(s) chair the Thesis Committee. The entire composition of the committee must be approved by the Chair of the Ph.D. Program before the Thesis Proposal is scheduled.

Prior to presenting the Thesis Proposal, the four Core Courses of the Course Qualifier and the research, speaking and writing skills portions of the Research Qualifier must be complete.

In the Thesis Proposal, the student is formally asking the faculty for permission to pursue a line of research leading to the Dissertation. To do this, the student must do the following:

- Describe a problem and its importance;

- Summarize and evaluate what previous work has been done by others to solve this problem;

- State what has been accomplished so far by the student and how and why it will lead to the solution, or partial solution, of the problem;

- Describe and state what the student intends to do to complete the dissertation and how long it is expected to take; and

- Identify what novel and significant contributions it will make to the field of Robotics that merit awarding the degree of Ph.D.

The oral presentation of the proposal is made publicly to the entire research community, including particularly the Thesis Committee. The Thesis Committee must then express approval to the Chair of the Program if the proposal is to be accepted.

The Dissertation itself is normally preceded by a year or more of research and writing after the proposal. The Dissertation is a scholarly document describing the problem, related work, the student's approach, the results and insights achieved, and the significance of the work. The written dissertation must be presented to the Thesis Committee for approval.

All Course and Research Qualifiers must be completed before scheduling a Thesis Defense.

The faculty of the Robotics program and the local community must receive notice of all thesis presentations at least one week in advance. Therefore, students are required to provide the Program Coordinator with complete information, no less than ten days before the scheduled presentation, including: title, abstract, committee members, on-line location of thesis document and/or hard copy. The Program Coordinator will advertise theses presentations on appropriate on-line and physical venues.

When the committee gives preliminary approval, the Oral Defense of the thesis can take place. At the Oral Defense, the committee and the entire community will have the opportunity to publicly question the work critically. Finally, the Thesis Committee on behalf of the faculty must decide whether to approve the oral defense and whether, or under what conditions, to accept the dissertation and recommend awarding of the doctoral degree.

A student will be certified for graduation and allowed to attend commencement ceremonies when the thesis is unanimously approved by his or her Thesis Committee and it has been delivered to the Program Coordinator in final form. The student will be awarded the degree of Doctorate of Philosophy in the field of Robotics.

Robotics Orientation

The student's research education begins in the Robotics Orientation, which all Robotics students must attend at the beginning of their first semester in the program. The Robotics Orientation is a

series of lectures, discussions, and demonstrations that familiarize the students with Carnegie Mellon and the Robotics Program, introduce the research projects and faculty within the Program and affiliated departments, and describe the computational and other resources available to students in the Program. The Robotics Orientation gives students an opportunity to learn what it means to conduct research and to get to know the faculty in the Robotics Program.

Advising and Matching Process

The candidate's advisor will be the faculty member who works most closely with that student. This is usually the most important factor in the student's research education, so choice of an advisor should be based on careful consideration. New candidates and faculty will have extensive opportunity to meet to discuss research, assess compatibility, and evaluate interests. The Matching Committee will match students and faculty advisors based on the preferences of the students and the faculty, subject also to the research agenda (and funding) of the faculty.

In order to make this an informed process, the assignments are made approximately 6 weeks after the Robotics Orientation, giving an ample period of time for the new students to meet the faculty individually. Each new student should use this opportunity to talk to all the faculty whose research interests might overlap those of the student. In this way, the students can learn about all the available research areas of the faculty, and the faculty can meet and talk with the students, before commitments are made. Students and faculty present their preferences for advisor/advisee pairings, and these preferences are used in matching students and advisors. After the Matching process, each student begins guided research under supervision of the advisor.

The duties of the advisor include approving the student's selection of courses, mentoring the student in research, advising the student on methods and skills, providing research opportunities and facilities for the student, and reporting on the student's progress to the faculty.

Advising relationships are mutually agreed and are mutable. It is possible for a student to change advisors with approval of the Chair of the Program. A student may request to switch to a new advisor, to add an additional co-advisor, or to remove a co-advisor. In this way, the student's changing perspectives and research focus can be accommodated by the program. Generally, the student should discuss such matters first with their current advisor(s), then make a tentative agreement with the new advisor(s), then finally request that the new plan be approved by the Chair of the Program. The Chair of the Program is available to help guide the student through this process if needed.

Timeline of Study

It is expected that students will complete both the Course and Research Qualifiers concurrently in two years of dedicated study.

Students who have completed at least half of the required courses in graduate study prior to entering the Program, such as in the Robotics Masters program, will be advanced one year in the timeline for completing the Course Qualifier. This means they are expected to complete remaining courses in only one year of dedicated study.

It is expected that the Thesis Proposal will require about half a year of productive research beyond the Research Qualifier for its preparation and that it will be presented during the student's third year in the Program.

Students who are more than one year beyond the expected completion time for a qualifier or proposal are not making satisfactory progress in the Program. Specifically if not complete with: the Course Qualifier after three years (or two years if advanced due to prior coursework) or the Research Qualifier after three years or the Thesis Proposal after four years, then students are not in good standing and, subject to the judgment of the faculty in the Review of Progress, may be removed from the Program.

Review of Progress

At the end of each semester, the entire faculty of the Robotics Program meets 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 Chair of the Program based on the above discussion.

After the meeting, the Chair of the Program 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, as described in the "Robotics Graduate Student Handbook".

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 Chair of the Program to review the case again. The Chair 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.

Master's Degree in Robotics

The Robotics Doctoral Program at Carnegie Mellon is principally a Ph.D. program. However a student who is working towards a Ph.D. may receive the degree of M.S. in Robotics by completing the requirements as defined by the current Masters Program course of study. This M.S. degree may be completed as a terminal degree or may be granted while still continuing to the Ph.D. degree.

Ph.D. Core Courses

Perception Core Courses

16-720: Computer Vision. Topics covered include image formation and representation, camera geometry and calibration, multi-scale analysis, segmentation, contour and region analysis, energy-based techniques, reconstruction of based on stereo, shading and motion, 3-D surface representation and projection, and analysis and recognition of objects and scenes using statistical and model-based techniques.

16-722: Sensing and Sensor. The principles and practices of quantitative perception (sensing) illustrated by the devices and algorithms (sensors) that implement them. Learn to critically examine the sensing requirements of proposed applications of robotics to real problems, to specify the required sensor characteristics, to analyze whether these specifications can be realized even in principle, to compare what can be realized in principle to what can actually be purchased, to understand the engineering factors that account for the discrepancies, and to design transducing, digitizing, and computing systems that come tolerably close to realizing the actual capabilities of available sensors.

Cognition Core Courses

15-780: Artificial Intelligence. Introduction to Artificial Intelligence tailored toward the algorithms and applications of robotics, manufacturing, and engineering disciplines. Strong focus on modern numerical approaches to AI and robotics, including Bayes nets, classical decision-theoretical problems such as scheduling, and optimal and learning control of Markov systems. Motion planning and spatial reasoning, neural nets, qualitative reasoning, and fuzzy logic are covered in detail.

10-701: Machine Learning. Machine Learning is concerned with computer programs that automatically improve their performance through experience. This course covers the theory and practice of machine learning from a variety of perspectives. Topics covered include learning decision trees, neural network learning, statistical learning methods, genetic algorithms, Bayesian learning methods, explanation-based learning, and reinforcement learning. The course covers theoretical concepts such as inductive bias, the PAC and Mistake-bound learning frameworks, minimum description length principle, and Occam's Razor. Programming assignments include hands-on experiments with various learning algorithms. Typical assignments include neural network learning for face recognition, and decision tree learning from databases of credit records.

10-715: Advanced Machine Learning. The rapid improvement of sensory techniques and processor speed, and the availability in inexpensive massive digital storage, have led to a growing demand for systems that can automatically comprehend and mine massive and complex data from diverse sources. Machine Learning is becoming the primary mechanism by which information is extracted from Big Data, and a primary pillar that Artificial Intelligence is built upon. This course is designed for Ph.D. students whose primary field of study is machine learning. The topics of this course will in part parallel those covered in the general graduate machine learning course (10-701), but with a greater emphasis on depth in theory and algorithms. The course will also include additional advanced topics such as fairness in machine learning. Students entering the class are expected to have a pre-existing strong working knowledge of algorithms, linear algebra, probability, and statistics.

Action Core Courses

16-711: Kinematics, Dynamic Systems, and Control. Basic concepts and tools for the analysis, design, and control of robotic mechanisms. Topics covered include foundations of kinematics, kinematics of robotic mechanisms, review of basic systems theory, control of dynamical systems. Advanced topics will vary from year, including motion planning and collision avoidance, adaptive control, and hybrid control.

16-741: Mechanics of Manipulation. Kinematics, statics, and dynamics of robotic manipulator's interaction with a task, focusing on intelligent use of kinematic constraint, gravity, and frictional forces. Automatic planning based on mechanics. Application examples drawn from manufacturing and other domains.

Math Foundations Core Course

16-811: Mathematical Fundamentals for Robotics. This course covers selected topics in applied mathematics. Topics covered in the past have included: polynomial interpolation and approximation; solution of nonlinear equations; roots of polynomials; approximation by orthogonal functions such as Fourier series; optimization; calculus of variations; probability; numerical solution of differential equations.

Research Qualifier

Some students may feel unprepared for the Research Qualifier. To help in that regard, there are courses and materials available that can prepare the student for speaking, writing, and teaching. For international students, Language Support in the Student Academic Success Center can recommend remedial course work, workshops and seminars on an individual basis to help ensure that students have the language skills to pass these three portions of the Research Qualifier.

Research Skills

This is the most important skill learned as a Ph.D. student, and it is the primary responsibility of the advisor to mentor the student in research skills. Students and advisors should meet regularly to discuss research and plan approach.

Speaking

A suitable course for a student to take to improve speaking ability is:

90-718: Strategic Presentation Skills

In addition, the School of Computer Science has many videotapes of distinguished lecturers that are available for students to review.

Writing

A suitable course for a student to take to improve writing skill is:

76-870 Professional and Technical Writing

In addition, it is recommended that students read extensively in the field, especially award-winning papers, to get an idea of what good writing entails. Many papers and presentations exist on techniques for writing well, including Marc Raibert's "Good Writing". A student's advisor can also provide opportunities to review papers for conferences and journals, another helpful tool in improving a student's writing skills.

Teaching (Non-Native Speakers of English)

There are many courses and seminars offered weekly and each semester through the Eberly Center that can be taken to improve teaching ability.

For non-native speakers of English, Carnegie Mellon policy, in accordance with the Pennsylvania English Fluency in Higher Education Act, requires that all students apply for language certification through Language Support in the Student Academic Success Center before they can be certified to serve as International Teaching Assistants (ITAs). Students can satisfy the certification requirement using either the TOEFL option if their speaking score is between 26-30 or applying for the ITA test option. A rating of "Pass" or "Restricted One" must be attained in order to qualify for certification.

While Carnegie Mellon and Commonwealth of Pennsylvania policies require the above standard of students teaching assistants in undergraduate courses, the Robotics Institute requires these standards of all teaching assistants in any Robotics course, and all Robotics students assisting in a course in Robotics or any other department. This holds for both graduate and undergraduate courses. The Program Coordinator will monitor the status of all international students to ensure that a Pass or Restricted One has been attained before any student will be permitted as a teaching assistant. Students found to be out of status, either by assisting before they have attained a Pass or Restricted One will risk not having the teaching assistant assignment count toward his or her Research Qualifier and having to act as teaching assistant again once the required standards are met. The full university policy can be reviewed at: https://www.cmu.edu/policies/faculty/evaluation-certification-english- fluency-instructors.html.   The fluency of all instructional personnel will be rated by Language Support in the Student Academic Success Center to determine at what level of responsibility the student can TA.

The Eberly Center for Teaching Excellence is a resource for TA and instructor training and included in the section Additional University Resources, Appendix A.

The responsibilities of a TA vary with different courses. Examples are:

Help design homework assignments and other instructional materials
Give recitations
Grading
Help with organizing poster sessions (if applicable)
Advise small groups of students for class projects (if applicable)
Hold office hours for individual tutoring

Independent Study

Independent Study (16-995) is a course designed to provide students with an opportunity for intensive study of a subject that is either unavailable or insufficiently covered in regular course work. Independent study is not intended to substitute for existing courses, but to provide the opportunity for a specialized educational and research experience.

Any faculty member in the Robotics Institute is eligible to serve as the supervisor of an Independent Study research project. The student must provide a brief prospectus of the project to the faculty supervisor as a basis for reaching agreement on the objectives of the study and provide this to their advisor and to the Program Chair for approval.

Resources and Regulations Governing Research at Carnegie Mellon

Office of Sponsored Programs

Office of Research Integrity & Compliance

Intellectual Property Policy

Policy on Restricted Research

Human Subjects in Research Policy

Course Requirements and Related Policies/Protocols

Registration Policies

During the fall and spring semesters PhD students should normally be registered for 48 units. During the summer, students should normally be registered for 36 units.

Double Counting Courses

Any course counted toward another master's-level or bachelor-level degree may not be counted toward the Secondary Master's in Robotics in the Ph.D. program.

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 which can also be found at the above webpage.

Transfer Courses & PCHE

https://www.cmu.edu/policies/student-and-student-life/cross-college-university-registration.html 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. (Note: suspended students may take courses elsewhere; however, they may receive transfer credit only if their college's and department's policy allow this.)

At Carnegie Mellon courses can only be credited to a single degree; additionally transfer credit for graduate courses completed at other institutions is not granted in robotics. However if

students possess all of the knowledge conferred and evaluated in a particular course, they may apply for a waiver to be released from the requirement of enrolling and completing the course.

Course Audit Policy

Auditing is presence in the classroom without receiving academic credit, a pass/fail, or a letter grade. Audited courses will not count towards your degree requirements. The extent of a student's participation must be arranged and approved by the course instructor. A student wishing to audit a course is required to register for the course, complete the Course Audit Approval Form, obtain permission of the course instructor and their advisor, and return the form to the Registrar's Office prior to the 10th day of class.

Any student enrolled full-time may audit a course without additional tuition charges. Part-time students who choose to audit a course will be assessed tuition at the regular per-unit tuition rate.

Grades & Grading

Passing grade for graduate courses is B- or better. Once the required coursework is completed, students register only for a blanket course (e.g., "Reading and Research") covering all their program activities for that semester, for which they receive a Pass/No Pass grade.

Robotics Ph.D. students may formally register for graduate or undergraduate courses in other departments, in which case they are subject to the grading policies of the University and the department offering the course.

Students enrolled in other programs, but taking courses in Robotics, are assigned either a letter grade or a "Pass/Fail/No Grade," at the option of the instructor. When a letter grade is required by the student's home department in order to receive credit toward the degree, the policy of the home department will be respected.

The University Policy on Grades offers details concerning university grading principles for students taking courses and covers the specifics of assigning and changing grades, grading options, drop/withdrawals and course repeats. It also defines the undergraduate and graduate grading standards.

Process for Appealing Final Grades

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

Academic Integrity Policy

Please review the University Policy on Academic Integrity: https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html. The policy includes the University expectations around academic integrity and provides definitions of cheating, plagiarism, and unauthorized assistance.

A review of the University's Academic Disciplinary Actions procedures: https://www.cmu.edu/student-affairs/theword/academic-discipline/index.html is also recommended. These procedures outline the process for investigating, reporting, and adjudicating violations of the University Policy on Academic Integrity. The procedures also outline the appeal process.

University Wide Protocol
https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html

PhD Criteria for Advancement to Candidacy

University Policy for Doctoral Students

This is a series of policies that set forth a definition of All But Dissertation (ABD), time limits on doctoral candidacy status, a definition of *in residence* and *in absentia* status for ABD candidates and the tuition and fees charged for candidates in each status. The ABD status agreement form, https://www.cmu.edu/hub/docs/abd-status-agree.pdf and ABD status change form, https://www.cmu.edu/es/docs/abd-status-change.pdf

Internship Opportunities

International students are required to consult with the Office of International Education for eligibility before seeking an internship/co-op or signing an offer contract.

If students choose a Practicum (internship) for directed research, they must complete a form that is available from the Program Coordinator and to perform a Practicum more than 4 times, they must have prior approval from the Ph.D. Program Chair.

Graduation and Certification

The Program Coordinator maintains a checklist of procedures for scheduling the thesis oral presentation and completing the other requirements for graduation. The Program Coordinator certifies fulfillment of requirements for graduation only when the final version of the thesis

1. has been approved by the thesis committee, the Department Head, and the Dean, and

2. is submitted to the Graduate Program Coordinator at which time the student will be awarded the degree of Doctorate of Philosophy in the field of Robotics.

Students are not allowed to participate in commencement exercises unless final certification has been made.

If the final copy of the thesis is not submitted within one year of the thesis defense, a second defense may be required before making a final certification.

Leave of Absence and Withdrawal

Students who wish to leave the program temporarily may request a leave of absence by submitting a request to the Program Coordinator. Leaves are initially granted for a period of no more than one year, but an extension of up to one additional year may be granted under exceptional circumstances. When an extension is granted, the conditions for return must be negotiated with the advisor and the Ph.D. Program Chair prior to returning to the program. Students not in good standing will have conditions for return determined by the Program Chair in consultation with the advisor.

Students on leave of absence should contact the Program Coordinator two months prior to the end of the leave to indicate their plans for the next year. While a leave can, in principle, start at any time, university regulations allows students to return only at the beginning of a semester (usually late August or early January).

University policy for Student Leaves:
https://www.cmu.edu/policies/student-and-student-life/student-leave.html
University process for Leave of Absence and Withdrawal:
https://www.cmu.edu/hub/registrar/leaves-and-withdrawals/

Withdrawal of Degree

The university reserves the right to withdraw a degree even though it has been granted should there be discovery that the work upon which it was based or the academic records in support of it had been falsified. In such a case, the degree will be withdrawn promptly upon discovery of the falsification. The complete reference to this university policy is available at: https://www.cmu.edu/policies/student-and-student-life/withdrawal-of-a-degree.html.

Enrollment Verification

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.

Directed Research

During a student's first two years, he or she should be doing directed research at least half time; once all coursework is completed and before doing thesis research, full time (except when teaching). Students commonly use the summer semester to make progress on their Ph.D. research. Different students, and

different advisors, have different ideas of what directed research means and how progress can be demonstrated. It is the responsibility of both the student and the advisor(s) to formulate for each semester a set of reasonable goals, plans, and criteria for success in conducting directed research.

Students should enroll for 24-48 units of either Graduate Reading and Research (16-997) or Practicum (16-990) for each semester (Fall, Spring and Summer) in which they are active (excludes LOA and ABS status; and dual degree Portugal students). Directed research is graded pass/fail. If students choose a Practicum (internship) for directed research, they must complete a form that is available from the Program Coordinator and to perform a Practicum more than 4 times, they must have prior approval from the Ph.D. Program Chair.

At each semi-annual Review of Progress meeting, the faculty assess the student's previous semester's research progress and the student's next semester's research plans to ensure that the student is making satisfactory progress. The evaluation of a student's progress in directed research often depends on the student having produced some tangible result; examples include the implementation of pieces of a software system, a theoretical advance, a conference paper or journal article, an annotated bibliography in a major area, or, as part of preparation for doing research, a passing grade in a graduate course (beyond the required 96 course units).

Advisors are individually responsible for adequately supervising this portion of the PhD program.

Additional Department Policies/Protocols

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. 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 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.

Summary of Graduate Student Appeal & Grievance Procedures

https://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html
Graduate students will find the Summary of Graduate Student Appeal and Grievance Procedures on the Graduate Education Resource webpage.   This document summarizes processes available to graduate students who seek review of academic and non-academic issues. Generally, graduate students are expected to seek informal resolution of all concerns within the applicable department, unit or program

before invoking formal processes. When an informal resolution cannot be reached, however, a graduate student who seeks further review of the matter is to follow the formal procedures outlined here.   These appeal and grievance procedures shall apply to students in all graduate programs of the University. Students should refer to the department specific information in this handbook for department and college information about the administration and academic policies of the program.

Safeguarding Educational Equity / Sexual Misconduct Policy

The University prohibits sex-based discrimination, sexual harassment, sexual assault, dating/ domestic violence and stalking. 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 of Title IX Initiatives, http://www.cmu.edu/title-ix/, 412-268-7125, tix@cmu.edu
- University Police, 412-268-2323

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

Maternity Accommodation Protocol

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

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

Doctoral students 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 Maternity Accommodation or 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. To receive this

support students must be registered with the Office of the Dean of Student Affairs for a Maternity Accommodation.

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.

Change of Address

Robotics students are responsible for notifying the RI and the HUB of all address changes in a timely manner. Students will be held responsible for any failure to receive official college notices due to not having a correct address on file; F-1 students may jeopardize their status if address information is not kept current.

Students can change their address using SIO, which is available via the HUB website: http://www.cmu.edu/hub/index.html.

"Grandfather" Policy

When policies are changed it is because the department believes the new rules offer an improvement. However, students currently enrolled whose degree program is affected by a change in policy may choose to be governed by the older policy that was in place at the time of their matriculation. In case degree requirements are changed and certain courses are no longer offered, the department will try to find some compromise that allows those students to satisfy the original requirements.

Financial Support

Stipends

Academic Year Funding:
The stipend will be $3,060/month for the 9 months August 16, 2021-May 15, 2022.

To any student whose spouse or qualifying domestic partner earns less than $200 per month, the Department pays a dependency allowance that is 10% of the student's SCS monthly stipend per dependent.

Students who receive stipends that are paid for or administered by the university must sign up for direct deposit as University payroll is a paperless system. Stipends are issued semi-monthly. December stipends are usually distributed a little earlier, due to the holiday season. Check with the Graduate Program Coordinator if you are unclear about the distribution of stipends.

<u>Summer Stipend</u>

Summer stipend is guaranteed for first year students. After the first full year, summer stipend is available for most Ph.D. students, particularly for those working on their dissertation. Please note that all financial support is subject to continued satisfactory progress toward your degree.

We believe it is also good for Ph.D. students to gain experience in industry for one or two summers during their career here at Carnegie Mellon. Faculty and staff will provide help in finding suitable summer employment.

Tuition

As long as the student is in good academic standing (with regard to grade average, progress in the program, and length of time in the program), full tuition remission as well as the activity, transportation and technology fees will be covered. For the academic year 2021-2022, this tuition remission is valued at $46,606. Students are responsible for the costs of purchasing their own books and miscellaneous supplies.

Fellowships

We encourage students to seek their own external funding since often the award is prestigious (e.g., NSF or Hertz) or the source provides an opportunity to make professional connections. The Robotics Institute supplements the stipends of students with an outside fellowship to meet (and usually exceed) the stipends of students with internal funding.

Students who are interested in applying for external fellowships should see their advisor or check the on-line information provided by the <u>Office of Scholarships and Fellowships Web site</u>. The Web site is an excellent resource for locating an abundance of information regarding available funding for students.

If a student receives and external fellowship/scholarship, they must notify <u>Rebecca Klaas</u>, Manager, Finance & Special Projects.

Consulting and Outside Employment

Consulting is a privilege, not a right. We grant this privilege for one of two reasons:

The consulting task is relevant to the student's thesis work or a Carnegie Mellon research project.

The student has exceptional financial obligations.

Consulting is normally limited to a maximum of eight hours per week. The work performed must be directly related to your doctoral research. Stipend will be reduced by the amount received from the external employment.

A student who wishes to consult should obtain permission from his or her advisor and the Ph.D. Program Chair, and fill out the External Appointment Request form.

We may require that students limit outside employment in order to be in compliance with University and government rules.

Semester Breaks and Vacations

Students with graduate assistantships are expected to continue with their research during academic breaks (including the Summer months) with the exception of the official university holidays. A complete list of the official university holidays can be found at the Human Resources website.

Due to federal regulations governing graduate student support, paid time off for personal business and vacations is not provided. A supported graduate student wanting to take a one week break during one of the summer months in which they are receiving a stipend is expected to get approval for that break with their advisor and make up the work during the other three weeks of that month. Supported graduate students wishing to take longer periods of personal time off must do so without pay and must receive advanced approval from their research advisor a minimum of four weeks prior to the requested time off. The advisor must then notify the Graduate Program Manager and Business Manager of this approval so that stipend adjustments can be processed.

Employment Eligibility Verification

If you are receiving a stipend, are a TA or you are planning to have a position with CMU then Employment Eligibility Verification is required. Form I-9 must be completed within three (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 Services website to learn more about Form I-9 and E-Verify and to schedule an appointment to complete the Form I-9.

Taxes

The deadline for local, state, and federal taxes is April 15. You can obtain tax forms in the mail, at the post office, or at the Carnegie Library. Questions about your tax status should be addressed to the IRSTeleTax at 412-261-1040, or the Pennsylvania Department of Revenue at 412-565-7540. Although subject to federal taxes, student stipends are generally not assessed local or state taxes.

Financial Aid Information

Financial Assistance

Research assistantships are available to qualified, full-time students in the Ph.D. program. Financial aid from the department includes full graduate tuition, activity, transportation and technology fees, plus a stipend paid semi-monthly. In addition to the tuition and stipend support referenced above, if you elect to enroll in Carnegie Mellon University's Student Health Insurance Plan (SHIP), the University will cover 50 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 to 50 percent of the individual coverage amount. 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, 2021. Please be advised that we will be verifying your enrollment with University Health Services prior to processing the insurance premium support. Also, for the balance of the premium not covered by the University, there is a payment plan available. More information can be found here: https://www.cmu.edu/sfs/billing/payments/monthly-plan/index.html.

Continuation of Funding

Renewal of your appointment as a Graduate Assistant is contingent upon satisfactory performance. In addition, you must remain in good academic standing and continue to make adequate progress toward your degree as determined by faculty. Summer financial support is not guaranteed; students may work with a research advisor during the summer months and continue to receive financial support, which is fairly routine. Each student is expected to work with his or her advisor and program coordinator to establish summer support levels as soon as possible after the program begins.

University Financial Aid

Graduate students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

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

Estimates of the Time Allocated to Each Component of the Ph.D. Program

The following table indicates estimates for an appropriate distribution of effort in the Ph.D. program. It is based on actual student performance over the past few years; it also corresponds to the faculty's judgment of realistic estimates of the time required by various components of the program.

These figures are meant to be suggestive, not prescriptive. We present them so that all faculty and students can develop a shared image of the expectations of the program.

* Always, except during the Robotics Orientation and when writing the thesis proposal.

COMPONENT	INTENSITY	DURATION	TOTAL TIME
Robotics Orientation	full-time	one week	one week
Courses	1/2 time	1 sem each	4 sem
Teaching	1/4 time	2 sem	2 sem
Skills	variable	variable	variable
Directed Research	1/2 time	*	5-7 sem
Thesis Proposal	1/2 time	2 sem	1 sem
Thesis	full-time	until done	2-4 sem
Good Works	variable	often	--

2021-2022
Highlighted University Resources for Graduate Students
and
The WORD, Student Handbook

Key Resources for Graduate Student Support

Office of Graduate and Postdoc Affairs
Office of the Dean of Students
Center for Student Diversity and Inclusion
Assistance for Individuals with Disabilities
Eberly Center for Teaching Excellence and Educational Innovation
Graduate Student Assembly
Office of International Education
Veterans and Military Community
Ethics Reporting Hotline
Policy Against Retaliation

Key Resources for Academic and Research Support

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Office of Graduate and Postdoc Affairs

www.cmu.edu/graduate; grad-ed@cmu.edu
The Office of Graduate and Postdoc Affairs provides central support for all master's
and doctoral students, as well as academic programs, with a focus on supporting
graduate student success at Carnegie Mellon.

Examples of resources offered through the Graduate Education Office and Postdoc Affairs
include- but are not limited to:

- Website with university resources, contact information for CMU programs and services, calendar of events related to graduate students
- Bi-monthly email to all graduate students with information on activities, resources and opportunities
- Professional Development Seminars and Workshops
- GSA/Provost Conference Funding Grants
- GSA/Provost Small Research Grants (GuSH)
- Consultations on issues related to the graduate student experience

The Office of Graduate and Postdoc Affairs also works with the colleges and departments by informing and assisting in developing policy and procedures relevant to graduate students and working with departments on issues related to graduate students. Additionally we partner 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. Vice President of Student Affairs and Dean of Students Gina Casalegno leads the Division of Student Affairs which includes the following offices and departments listed below (not an exhaustive list).

Graduate students will find the enrollment information for Domestic Partner Registration and Maternity 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 three forms of support funding for enrolled students: emergency student loans, maternity loans, and the Tartan Emergency Support Fund. These funds are made available through generous gifts of alumni and friends of the university as well as support from student organizations, Undergraduate Student Senate and the Graduate Student Assembly. 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.

Additional resources for graduate students include College Liaisons and the Student Support Resources team. 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 student SIO page in the Important Contacts list. The Student Support Resources team offers an additional level of support for students who are navigating any of 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 includes (not an exhaustive list):
Athletics, Physical Education and Recreation

Center for Student Diversity and 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)
- Transgender and non-binary student programs

Assistance for Individuals with Disabilities

http://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. 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 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

www.cmu.edu/teaching

We offer 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, our 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 www.cmu.edu/teaching/graduatestudentsupport/index.html.

Graduate Student Assembly

www.cmu.edu/stugov/gsa/index.html

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. Our recent accomplishments are a testament to GSA making a difference, and steps to implementing the vision laid out by the strategic plan. https://www.cmu.edu/stugov/gsa/About-the-GSA/Strategic-Plan.html.

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- a great place to study or meet up with friends. GSA also maintains a website of graduate student resources on and off-campus. Through GSA's continued funding for professional development and research conferences, the GSA/Provost Conference Funding Program and GSA/Provost GuSH Research Grants are able to run, as managed by the Graduate Education Office. As we move forward, GSA will continue to rely on your feedback to improve the graduate student experience at CMU. Feel free to contact us at <gsa@cmu.edu> to get involved, stop by our office in the Cohon University Center Room 304 or become a representative for your department.

Office of International Education (OIE)

http://www.cmu.edu/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 and advisement. 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

http://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 uro-vaedbenefits@andrew.cmu.edu or 412-268-8747.

Ethics Reporting 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 relating to areas below:

- Academic and Student Life
- Bias Reporting
- Environmental Health and Safety
- Financial Matters
- High-Risk Incident
- Human Resource Related
- Information Systems
- Research
- Threat of Business Interruption
- Threat of Violence or Physical Harm
- Title IX

Students, faculty and staff can anonymously file a report by calling 877-700-7050 or visiting www.reportit.net(user name: tartans; password: plaid). All submissions are reported to appropriate university personnel. **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 Resources for Academic and Research Support

Computing and Information Resources

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 it-help@cmu.edu.

Student Academic Success Center

https://www.cmu.edu/student-success/
Student Academic Support Programs

Tartan Scholars

> The Tartan Scholars program was created to provide support for limited resourced students through an intentional first year undergraduate experience with the goals of enhancing the cohort's skill and community building through a lens of self -authorship, growth mindset, and a sense of belonging. As part of the Student Academic Success Center, Tartan Scholars are invited to join the University and participate in summer initiatives and pre-orientation activities prior to their first year at the University.

> There are opportunities for graduate students to serve as accountability, learning, or development partners, workshop facilitators, and presenters. Contact Diane Hightower at ddhighto@andrew.cmu.edu for more details.

Learning Support

Supplemental Instruction: Supplemental Instruction (SI) is an academic support model that utilizes peer-assisted study sessions. The SI program provides regularly scheduled review sessions on course materials outside the classroom. SI is a non-remedial approach to learning as the program targets high-risk courses and is available in select courses based on data related to past student performance and feasibility.

Peer Tutoring: Weekly Tutoring Appointments are offered in a one-on-one and small group format to students from any discipline who need assistance with a course that may not be supported by our other services. Weekly appointments give students the opportunity to interact regularly with the same tutor to facilitate deeper understanding of concepts. Students can register online through the Student Academic Success website.

Academic Coaching: Academic Coaching provides holistic one-on-one peer support and group workshops to help students find and implement their conditions for success. We assist students in improving time management, productive habits, organization, stress management, and study skills. Students will request support through the Academic Success Center website and attend in-person meetings or meet using video and audio conferencing technology to provide all students with support.

"Just in Time" Workshops: The Student Academic Success team is available to partner with instructors and departments to identify skills or concepts that would benefit from supplemental offerings (workshops, boot camps) to support students' academic success and learning. We are eager to help convene and coordinate outside of the classroom skill-building opportunities that can be open to any student interested in building skill or reinforcing course concept mastery.

Study Partners: Support for students to create and benefit from their own study groups: The Student Academic Success team assists students in forming and benefiting from peer study groups, whereby all students can reap the benefits of peer-to-peer learning, student agency, and collaboration skill development. Staff from the Student Academic Success Center will be made available to instructors and students to assist with the formation of peer-led study groups. This level of support is open to any course where the instructor requests or agrees such support is appropriate and students are interested in both leading and participating.

Language and Cross-cultural Support

More than 60% of graduate students at Carnegie Mellon are international students, and others are nonnative speakers of English who have attended high school or undergraduate programs in the US. Many of these students want to hone their language and cross-cultural skills for academic and professional success. Students can choose from sessions on

how to give a strong presentation,
writing academic emails,
expectations and strategies for clear academic writing,
how to talk about yourself as a professional in the U.S.,
developing clearer pronunciation,
using accurate grammar,
building fluency, and more.
Students can make an appointment with a Language Development Specialist to get individualized coaching on language or cross-cultural issues.

The Student Academic Success Center is also charged with certifying the language of International Teaching Assistants (ITAs), ensuring that nonnative English speakers have the language proficiency needed to succeed as teaching assistants in the Carnegie Mellon classroom. Students preparing to do an ITA Certification should plan to take classes offered by the language support team at the SASC from the beginning of their first semester. Start by contacting the language support team at the SASC website or attend a Language Support Orientation at the SASC or in your department.

University Libraries

www.library.cmu.edu

The University Libraries offers a wide range of information resources and services supporting graduate students in course-work, 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

www.cmu.edu/research/index.shtml

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 is found by visiting the Research at Carnegie Mellon website.

Office of Research Integrity & Compliance

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

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 Resources for Health, Wellness and 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.

University Health Services

www.cmu.edu/HealthServices/
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

https://www.cmu.edu/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. The BeWell@CMU e-newsletter seeks to be a comprehensive resource for CMU regarding all wellness-inspired events, announcements and professional and personal development opportunities. Sign up for the Be Well monthly newsletter via https://bit.ly/BeWellNewsletter or by contacting the Program Director for Student Affairs Wellness Initiatives, at alusk@andrew.cmu.edu.

Religious and Spiritual Life Initiatives

www.cmu.edu/student-affairs/spirituality

Carnegie Mellon is committed to the holistic growth of our students, including creating opportunities for spiritual and religious practice and exploration. We have relationships with local houses of worship from various traditions and many of these groups are members of CMU's Council of Religious Advisors. We 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. Our RSLI staff are here 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

http://www.cmu.edu/police/

412-268-2323 (emergency only), 412-268-6232 (non-emergency)

The University Police Department is located at 300 South Craig Street (entrance is on 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, finger print 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 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. Graduate students can obtain a copy by contacting the University Police Department at 412-268-6232. The annual security and fire safety report is also available online at https://www.cmu.edu/police/annualreports/.

Shuttle and Escort Services

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

http://www.cmu.edu/student-affairs/theword//

The WORD is Carnegie Mellon University's 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. Information about the following is included in The WORD (not an exhaustive list) and graduate students are encouraged to bookmark this site and refer to it often. University policies can also be found in full text at: http://www.cmu.edu/policies/.

> Carnegie Mellon Vision, Mission
> Statement of Assurance
> Carnegie Code
>
> Academic Standards, Policies and Procedures
>
> Educational Goals
> Academic and Individual Freedom
> Statement on Academic Integrity Standards for Academic & Creative Life
> Assistance for Individuals with Disabilities
> Master's Student Statute of Limitations
> Conduct of Classes
> Copyright Policy
> Cross-college & University Registration
> Doctoral Student Status Policy
> Evaluation & Certification of English Fluency for Instructors
> Final Exams for Graduate Courses
> Grading Policies
> Intellectual Property Policy
> Privacy Rights of Students
> Student's Rights
> Research
> Human Subjects in Research
> Office of Research Integrity & Compliance
> Office of Sponsored Programs
> Policy for Handling Alleged Misconduct of Research
> Policy on Restricted Research
> Tax Status of Graduate Student Awards
> Campus Resources & Opportunities
> Alumni Relations
> Assistance for Individuals with Disabilities
> Athletics, Physical Fitness & Recreation
> Carnegie Mellon ID Cards and Services
> Cohon University Center
> Copying, Printing & Mailing
> Division of Student Affairs
> Domestic Partner Registration

Emergency Student Loan Program
Gender Programs & Resources
Health Services
Dining Services
The HUB Student Services Center
ID Card Services
Leonard Gelfand Center
LGBTQ Resources
Multicultural and Diversity Initiatives
Opportunities for Involvement
Parking and Transportation Services
Shuttle and Escort Services
Spiritual Development
University Police
Student Activities
University Stores
Community Standards, Policies and Procedures
Alcohol and Drugs Policy
AIDS Policy
Bicycle/Wheeled Transportation Policy
Damage to Carnegie Mellon Property
Deadly Weapons
Discriminatory Harassment
Disorderly Conduct
Equal Opportunity/Affirmative Action Policy
Freedom of Expression Policy
Health Insurance Policy Immunization Policy
Missing Student Protocol
Non-Discrimination Policy
On-Campus Emergencies
Pets
Political Activities
Recycling Policy
Riotous and Disorderly Behavior
Safety Hazards
Scheduling and Use of University Facilities
Sexual Harassment and Sexual Assault Policy
Smoking Policy
Student Accounts Receivable and Collection Policy and Procedures
Student Activities Fee
Student Enterprises
Workplace Threats and Violence Policy