

Graduate Student Handbook

Carnegie Mellon University
Department of Statistics & Data Science

Doctor of Philosophy in Statistics

2023 – 2024

Updated August 28, 2023

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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1 Purpose of Handbook

This document provides an introduction to the graduate programs of the Carnegie Mellon University (CMU) Department of Statistics & Data Science. The Department provides a harmonious, non-competitive environment for studying, learning and doing research. We are selective in our admissions decisions, and we admit students with the expectation that they will successfully obtain an advanced degree. The faculty works closely with students to help them achieve their goals, and the programs are adaptable to individual needs. The graduate programs in statistics at CMU are directed towards training students to become statistical scientists. The courses are demanding, and sometimes the work may seem overwhelming, yet through sustained effort students can achieve enormous intellectual and personal growth. Our faculty members often seem busy (and are) with undergraduate teaching, research, and professional activities, but we all get great satisfaction from guiding novice statisticians into the field and we thus make interactions with graduate students a top priority.

This handbook provides some general information and describes many of the customs and rules of the Department. We hope that the details presented below will not obscure our major message: we are very pleased to have you here and will do all we can to assure you a rewarding experience. 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 CMU. Information about The Word, the student handbook, the Graduate Education Office, the Office of the Dean of Student Affairs and others are included in the appendices of this handbook.

Other Resources This Handbook provides general information about the Department, and the conventions and regulations that govern student life. A related source of information is our web pages; there you can find both the specific courses of study leading to the MSP, Master's, and Ph.D. degrees and the general environment a student might expect to find here. The University also produces The Word, a student handbook covering university-wide rules and regulations and various support programs and services provided by the University. It can be found online at <https://www.cmu.edu/student-affairs/theword/index.html>.

Students should receive these upon their arrival and are encouraged to review them and become familiar with the policies that govern the operation of the University. Further University resources are listed in [Appendix A Highlighted University Resources for Graduate Students](#).

Questions concerning any of the topics covered here, or any other matters pertaining to the functioning of the Department, may be addressed to any of the faculty or staff. However, the person most likely to know the answers is often the Director of Graduate Studies (Valérie Ventura/Ann Lee) or the Business Manager (Laura Butler); the Department Head (Rebecca Nugent) is responsible for determining policy through consultation with the Di-

rector of Graduate Studies and the rest of the faculty. Students who require this handbook in an alternative format should speak to the Director of Graduate Studies.

NEW SECTION BY VV to summarize the expectations – IN PROGRESS

2 Major Milestones and To Dos by Cohorts at a Glance

- Year 1** *Fall* * Choose an ADA project
- Year 2** *Fall* * Register for ADA2, 12 units of 36795 and one elective. Adding a second elective must be approved by the PhD advisor.
* First draft of ADA report due mid semester
* Final draft due XXX
- Spring* * Look for a PhD advisor
- Year 3** * Work towards a thesis proposal
- Year 4** * Proposal expected by the 10th day of classes
- Year 5** * Defense expected by XXXXX

3 Departmental Information

The Department of Statistics & Data Science is housed in various suites: BH 132, BH 129, BH 232, BH 228, BH 229, PH 117, FMS, and 3rd floor of Wean Hall. Faculty, student, and staff offices are interspersed throughout these areas. There is one conference room/library in BH 229A, and a lounge and small kitchen in BH 132. Mailboxes are in the lobbies of BH 232 and BH 129.

3.1 Department Personnel

- Dean of Dietrich College: Richard Scheines, scheines@cmu.edu
- Statistics & Data Science Department Head: Rebecca Nugent, rnugent@stat.cmu.edu
- Co-directors of Graduate Studies: Valérie Ventura, vventura@stat.cmu.edu, for 1st and 2nd year students; Ann Lee, annlee@stat.cmu.edu, for later cohorts
- Ph.D. Coordinator: Danielle Hamilton, daniellt@andrew.cmu.edu
- Business Manager: Laura Butler, lfbutler@stat.cmu.edu
- Assistant Business Manager for Operations: Jess Paschke, jpaschke@stat.cmu.edu

- Systems Engineer: Carl Skipper, skipper@stat.cmu.edu
(Direct **all technical support requests** to remarks@stat.cmu.edu)
- Faculty: <https://www.cmu.edu/dietrich/statistics-datascience/people/>

3.2 Adjusting to the Department

There are two formal orientation activities that will be of interest to new graduate students in Statistics.

- Two weeks before the start of Fall Semester courses start, a Graduate Student Orientation is held by CMU. This orientation covers many aspects of campus and American culture that may not be familiar to foreign students, and also introduces them to the facilities of the Language Support in the Student Academic Success Center (SASC). New graduate students in Statistics who are unfamiliar with American academic culture, or for whom English is a second language, are required to attend this Orientation. You will receive information about it from the Department, or directly from the SASC. Note that this orientation requires advance registration, typically about a week prior to its start. For more information, see <http://www.cmu.edu/graduate/programs-services/orientation/>.
- During the week before fall classes start, the Department holds an orientation for all incoming graduate students. Important, basic information about the Department and about being an effective TA and grader is covered. In addition, this is a time for new students to go over their academic programs with their faculty advisor, and to meet faculty and other students in the Department. Every new graduate student in Statistics & Data Science is required to attend this orientation. You will receive information about this orientation from the Department.

3.3 Office Space

The Department provides each student with office space, which is generally shared with other students. The Department has a suite of offices and open spaces (with cubicles) for graduate student use, and students are assigned to these spaces in a process managed each year by the Student Advisory Committee. Students are generally given the opportunity to choose their assigned office in order of seniority.

3.3.1 General Courtesy

Out of courtesy to everyone in the Department, all common areas (i.e., kitchen, lounge, and copy rooms) should be kept in good shape. Dirty dishes and utensils should not be left in the kitchen; spills should be cleaned immediately. The refrigerators are for short-term storage only; all items should be removed before any spoilage occurs. Please label

any bags or items in the refrigerators with your name or initials. Cleaning the refrigerator in the graduate student offices is the responsibility of the students. All items in the copy rooms should be returned to their proper places immediately after use.

Office space and access to computing facilities must be shared with other students. Students should try to share these facilities as courteously as possible. Within each office students should try to decide among themselves how the office should function. In making this decision, students should keep in mind that the offices are intended as a place for work. Disturbances to a quiet working environment, such as socializing or speaking on the phone for lengthy periods of time, should be minimized. In addition, students often work together in an office and, while this is beneficial to them, it may disturb other office-mates. Exactly how much disturbance is tolerated should be left up to the students in each office: some offices may be filled with people who don't mind disturbances, others with students who require quiet most of the time. In deciding office policy, it is usually best to respect the feelings of those who need quiet. In situations where it is impossible to maintain an effective working environment, students may request an office change through the Student Advisory Committee (SAC) or the Director of Graduate Studies.

3.3.2 Office Supplies

The Department provides basic office supplies, such as printer paper and whiteboard markers, for use by graduate students in the course of their teaching and research work. If supplies are needed for teaching or for research with a faculty member, requests may be made to one of the staff.

3.3.3 Keys

Each student is provided with keys to their office, to the main department doors, and to departmental common areas (i.e., lobbies, copy rooms, conference rooms, lounge, and library). Please see Samantha Brancato (BH 232Q) for keys.

3.4 Campus Security

Although Pittsburgh does not have the crime problems of many major American cities, theft and assault remain occasional threats on or near the CMU campus. Students should be careful with their belongings and should avoid walking alone in poorly lit or remote areas. The University operates a shuttle and escort service; more information can be found at <https://www.cmu.edu/parking/shuttle/escort-and-policies.html>.

For the safety of everyone, and in the interests of protecting our valuable equipment, it is extremely important that all students be very careful about the security of the Department. After the staff have left for the day, the Department is considered closed: the

meeting rooms and copier rooms should be locked when not in use and people not affiliated with the Department, including undergraduate students, should not be admitted to the Departmental suites unless accompanied by a Department member. In particular, office hours cannot be held in Department spaces outside usual business hours (8:30 a.m. – 5:00 p.m.). If strangers are found in the wing after hours, they should be asked to identify themselves and their purpose for being there; if the situation is uncomfortable, Security should be called (at 412-268-2323).

If you use the audio-visual equipment installed in Department conference rooms, please be sure to properly and completely shut it down once you are finished. These rooms should always be locked when they are not occupied.

3.5 Photocopier Usage

The Department has three photocopiers. The machine in BH 132 is especially well-suited for double-sided copying, collated copies, and large copy jobs. The machines in BH 129 and 229 should only be used for smaller copying jobs. All copiers are networked, so it is possible to print large numbers of copies directly from a computer, and scanned PDF files can be created on them and sent to you via email.

Statistics graduate students are permitted to use the copiers for Departmental purposes, such as making copies or scanning exams for a course. Occasional personal use is permitted, provided it is limited and does not interfere with other uses.

3.6 Computing Resources

The Department maintains computing resources for the use of graduate students and faculty during their research. These include shared Linux servers that can be used for computing-intensive projects in common languages such as R or Python, as well as access to the Pittsburgh Supercomputing Center and Microsoft Azure cloud computing resources. These resources are introduced during the Department's orientation for new students.

These resources are shared, and computing plays a vital role in all graduate students' classroom work and research, so students should try to equitably share these resources.

3.7 DeGroot Library

The DeGroot Library, located in BH 229A, is for the use of Department members only. Library books and journals should be used in the library when possible, and if taken out of the library, should be logged in the black folder and returned as soon as possible, certainly within a month.

3.8 Academic Calendar

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

4 The Ph.D. Program

The program leading to the degree of Doctor of Philosophy in Statistics seeks to strike a balance between theoretical and applied statistics. The Ph.D. program prepares students for university teaching and research careers, and for industrial and governmental positions involving research in new statistical methods. Four to five years are usually needed to complete all requirements for the Ph.D. degree.

4.1 Core Requirements

The core Ph.D. requirements are as follows:

- Intermediate Statistics (36-705)
- Regression Analysis (36-707)
- Statistical Computing (36-750)
- Statistical Methods in Machine Learning (36-708)
- Advanced Statistical Theory (36-709)
- Advanced Data Analysis (36-757 + 36-758)
- Pass the Data Analysis Exam (see § 4.4 Data Analysis Exam)
- Satisfy the Area of Strength requirement (see § 4.6 Area of Strength Requirement)

Deviation from these requirements will only be allowed in exceptional cases, and with the approval of the Director of Graduate Studies. Requirements for students in joint degree programs differ slightly; see § 4.9 Joint Degree Programs below.

Ph.D. students will also take the class 36-699 *Immigration to Statistics* during their first semester. This course introduces each faculty member to new students. This provides students an initial feeling for the research interests of all the faculty members.

In later semesters students continue to participate in the department by attending seminars and taking or auditing further coursework. A variety of minis are offered every term that cover exciting topics in the field. Students are also encouraged to take or audit courses in other departments to deepen their understanding of application areas.

4. THE PH.D. PROGRAM

Year 1	Fall Semester	Spring Semester
	36-699: Immigration to Statistics 36-707: Regression Analysis 36-705: Intermediate Statistics 36-750: Statistical Computing	36-757: Advanced Data Analysis I 36-709: Advanced Statistical Theory I 36-708: Statistical Methods in Machine Learning Begin ADA project
Year 2	Fall Semester	Spring Semester
	36-758: Advanced Data Analysis II Elective, e.g., 36-710, 10-701, 10-715 Oral, written presentations of ADA project	Begin work towards proposal
Year 3	Fall Semester	Spring Semester
	Continue work towards proposal	Thesis proposal

Table 1: A typical course of study for students in the core Ph.D. program. This applies to students who are in the standard Ph.D. program. Students who are in joint degree programs should be aware of the additional requirements of these programs. See § 4.9 Joint Degree Programs below.

Table 1 is a template showing how a student could earn the Ph.D. degree (and also an M.S.; see § 4.5 Master of Science Degree) in four to five years. Reading and research leading toward the selection of a Ph.D. dissertation advisor and the development of a dissertation topic begins in the Spring of the second year and is carried on intensively during the following two or three years. Students are expected to present an oral thesis proposal in their third year, preceding the Ph.D. thesis itself. The thesis defense typically occurs in the fourth or fifth year.

4.2 Coursework Requirements

4.2.1 Total Number of Units Required for Degree Attainment

Students are required to complete the core curriculum and take R&R (reading and research) units until they graduate. They must be registered for at least 36 units every semester. It is expected that it will take about five years to attain the degree.


4.2.2 Drop/Add/Withdraw Procedures


Students follow the university academic calendar (see § 3.8 Academic Calendar) for deadlines. Generally speaking, the add deadline is the Monday after the first two weeks of classes. Students looking to add a course after this deadline must complete and submit a Course Add, Switch Section or Change Units Request form. The drop deadline is the Monday after the first six weeks of classes (tuition is not be adjusted, which does not affect you). After this deadline students may withdraw from a course up until the Monday

after the first ten weeks of classes by completing and submitting a Course Withdrawal Request form. Doctoral students do not receive vouchers or participate in the voucher process. After the withdrawal deadline, if students still wish to make adjustments, they should discuss options with their advisor.

4.2.3 Pass/No Pass Grades in Ph.D. Courses

Ph.D. students will receive letter grades by default, but may elect to receive PASS/NO PASS (P/NP) grades instead for any of their courses. To get a P/NP grade, they must submit the approval form <https://www.cmu.edu/hub/docs/pass-fail.pdf> to their academic advisor before the university P/NP deadline, which can be found in the academic calendar (see § 3.8 Academic Calendar). (The deadline is the Monday after the first ten weeks of classes and thus changes every year.) **Once this is done, it can't be reversed.**

 For graduate students, grades B- and above convert to a PASS for classes offered by Dietrich College; grades below convert to NO PASS. Other colleges have different conversion rule: for details, consult the end of the “Grading Standards” section at <https://www.cmu.edu/hub/registrar/student-records/transcripts/legend.html>.

 Students who intend to pursue a joint Stat/ML Ph.D. or a secondary ML MS degree have to receive letter grades for courses that are part of the joint curriculum because both programs have GPA requirements. Some fellowships might also have GPA requirements.

4.2.4 Policy on Grades for Transfer Courses

Carnegie Mellon University offers students the opportunity to take courses for credit through a cross-registration program (see Pittsburgh Council on Higher Education (PCHE) and Cross-registration below) and through the receipt of transfer credit from other accredited institutions. The CMU transcript will include information on such courses as follows: CMU 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 policies allow this.)

For complete information, see <https://www.cmu.edu/policies/student-and-student-life/transfer-credit-evaluation-and-assignment.html>.

4.2.5 University Policy on Grades

This policy offers details concerning university grading principles for students taking courses and covers the specifics of assigning and changing grades, grading options, drops, withdrawals and course repeats. It also defines the undergraduate and graduate grading

standards. See <https://www.cmu.edu/policies/student-and-student-life/grading.html>

4.2.6 Process for Appealing Final Grades

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

4.3 Advanced Data Analysis (ADA) Project

Each student identifies a project in the second half of the first semester on which they work for a calendar year, starting in January of their first year. The ADA project is done in collaboration **with an investigator from outside the Department**, under the guidance of a faculty member. It culminates in a potentially publishable report that is presented orally to the department and in writing at the end of the first semester of the second year. ADA projects come from a wide range of applied disciplines, and originate both from within and outside CMU. All projects are subject to the following guidelines:

1. The project is required to have an “outside advisor” with expertise in the application area and the particular question(s) being investigated. In most situations the outside advisor provides the data and the question(s) of interest. The outside advisor should not be an expert in statistics. Part of the objective of the ADA project is to give the student the opportunity to work in collaboration with someone who does not possess prior knowledge of the statistical methods to be employed, and to learn how to communicate with scientists. Students should develop the ability to explain and justify their chosen approaches to data analysis.
2. The project must use real data or realistic simulated data that are comparable to real data in their structure and format, and accepted as scientifically relevant by the domain science advisor.
3. The student should maintain regular (at least monthly) contact with the outside advisor to discuss progress and to ensure that relevant work is undertaken. Some of these interactions can take place remotely, but personal interactions are also needed.

4. The project must also have a faculty advisor from inside the Department of Statistics & Data Science. Students in the Joint Statistics/Public Policy Program must have both a Statistics & Data Science advisor and a Heinz advisor. The student should meet regularly with their advisor(s), usually once per week.
5. The project ends with a written document describing the work together with a presentation to the Department. The first draft of the written document or “ADA lab report” should be turned in to all advisors at the end of the first half of the fall of Year 2. The lab report is then finalized and turned in to the Department by the Reading Day at the beginning of the fall exam period; the final report will be posted on the private section of the Department website. The ADA presentation is 25 minutes in length with additional time allotted for questions and answers. It is scheduled by the Ph.D. Coordinator or Graduate director (see § 3.1 Department Personnel).

ADA report format The ADA report should be written in the IMRD format <https://www.cmu.edu/student-success/other-resources/handouts/comm-supp-pdfs/imrd-examples.pdf> and should not exceed 15 pages, excluding figures and appendices.

6. The written and oral portions of the ADA project for the Department should be completed at the end of the fall semester. The completion of the ADA report into a publishable paper is at the discretion of the ADA advisors and the student, and may extend up to one or two additional semesters depending on the scope and nature of the research.

4.4 Data Analysis Exam

At the conclusion of each Spring Semester the Department administers the “Data Analysis Exam,” which is designed to test students’ ability to apply statistical methods to address a substantive, real problem. The exam is largely built on the content of 36-707, and hence should be taken in the Spring following the completion of that course. Students are given eight hours to complete the exam, during which time they analyze the data and write a report to present their analysis and conclusions. The faculty are realistic as to what can be accomplished during the eight-hour period. In grading the exam, the faculty are looking for clear presentation of an appropriate analysis of the data. Emphasis is not placed on technical or mathematical sophistication.

This exam is typically given on the University’s “Reading Day” which is held during the final exam period, but the exact date will be announced when it is set.

4.5 Master of Science Degree

Many of our Ph.D. students earn a Master of Science (M.S.) in Statistics on the way to achieving their ultimate degree. The M.S. degree is awarded as a milestone after a certain

number of courses and other requirements have been completed. In addition, there are limitations on receiving multiple M.S. degrees from different departments at CMU; you cannot, for instance, receive both an M.S. in Statistics and an M.S. in Machine Learning unless these two degrees are built on disjoint course requirements.

The M.S. has a framework of requirements, as follows:

- Students must pass the Data Analysis Exam.
- Students must pass Intermediate Statistics (36-705), Regression Analysis (36-707) and Statistical Methods in Machine Learning (36-708).
- Students must complete a collaborative research experience such as Advanced Data Analysis (36-757 & 36-758) or an independent research project approved by the department.
- Students must also complete additional graduate credits (i.e., 3 courses) chosen from a variety of options. These classes must contain at least nine units from each of the following categories:
 - Statistical computing (36-750) or alternative approved by the department.
 - Statistical methodology (e.g., Statistics & DS methods minis, 10-701).
 - Statistical theory (e.g., 36-709, 36-710, 10-715, 10-716).

There is no thesis requirement for this degree. M.S. recipients can participate in the Department commencement ceremony, held at the end of each Spring semester.

4.6 Area of Strength Requirement

While students are required to meet a minimum standard of performance in all of their coursework, successfully completing a dissertation in Statistics requires that a student possess some relevant dimension in which their skills far exceed this minimum. Therefore, before a student can begin the process leading to the dissertation proposal, the student needs to demonstrate an “area of strength.” Examples of areas of strength include Theoretical Statistics, Applied Statistics, and Computational Statistics. There are multiple ways that a student can satisfy this requirement, including strong performance in coursework or on a research or data analysis project. The faculty exhibit flexibility and fairness in the application of this policy. The motivation is to ensure, to the extent possible, that the student will successfully complete their dissertation. The policy also recognizes the range of strengths and interests of our students, and that the discipline of Statistics needs researchers from across this spectrum.

The area of strength is determined by the Statistics faculty and will be communicated to the student via one of the progress update letters that are sent at the end of each semester (see [§ 4.15 Evaluation of Students](#)). Students who have not demonstrated an area of strength

will not be permitted to propose. Failure to establish an area of strength by the end of the fourth semester in the program may result in the student considered to not be in good standing.

4.7 Thesis Proposal

A student's thesis proposal is a critical opportunity for the faculty to guide and shape the dissertation research. The proposal process succeeds when it leads the student to a sound and detailed plan for the dissertation. To ensure students develop this plan and receive feedback early enough, students are expected to complete their thesis proposal by the end of their third year (which is effectively counted as by the 10th day of the beginning of the fall semester of the fourth year).

The faculty should provide the student with constructive criticism on proposed methods and approaches, force the student to question assumptions, and challenge the student's perspective on the problem. The proposal process described below has been devised with this in mind. It has the following steps:

1. The student, in consultation with their advisor, prepares an abstract and circulates it to the Department with an open invitation for faculty to serve on the thesis committee. This abstract need not be the final abstract for the proposal. The intention is to find faculty who are interested in the topic, and hence interested in serving on the committee. This email must be sent at least **six weeks** prior to the formal proposal event. The email should not specify the date and time of the proposal event or any preceding committee meetings, as these should be determined by consulting with the interested faculty members.
2. Interested faculty form the thesis committee. The committee is encouraged to meet two weeks prior to the proposal event to help formulate the research plan. The student and committee should agree on a date and time for the proposal event.

Any Department faculty member (visiting or regular) may be a member of the committee, but the advisor must be a regular faculty member. The student and advisor may encourage particular individuals to serve on the thesis committee, but cannot do anything that discourages any faculty from serving.
3. The student contacts the Ph.D. Coordinator (see [§ 3.1 Department Personnel](#)) to book a room for the proposal event and to place the event on the Department calendar.
4. The student, in consultation with their advisor and committee, prepares a rough draft of the proposal document. The body of this text is limited to 15 pages, excluding tables and figures. See [§ 4.7.1 The Proposal Document](#) below. Thesis committee members must be given the rough proposal document at least one week before the formal proposal event.

5. The “proposal event” takes place. During this, the student meets with the thesis committee in a scheduled, 1.5 hour session. Although the purpose of this meeting is for the committee to evaluate and guide the thesis proposal, the oral presentation is open to the faculty and students, if they wish to attend. The format of this proposal is the following:
 - (a) The student makes a presentation of their research plans and objectives. The duration of the presentation itself, not including questions from the audience, is up to 30 minutes.
 - (b) The floor is opened for questions from the committee and then the rest of the audience.
 - (c) The committee discusses the proposal privately. (Faculty in attendance may participate in this discussion as well.)
 - (d) The student returns to discuss the proposed research in detail. (Faculty who are not on the committee are not expected to stay for this discussion.)
 - (e) The student and committee formulate specific suggestions for changing the document and specific action items. They also decide if further meetings are necessary.
6. The student, in consultation with the thesis committee, revises the proposal document. The rules governing the length of this document will remain unchanged.
7. The proposal document is posted on the web in the Department private area. The faculty are notified that the document is available for viewing for at a one-week review period. Faculty comments should be directed to either the advisor or the student, as appropriate.
8. After the student addresses any comments or issues that arise concerning the proposal document, the proposal is approved by the committee.

4.7.1 The Proposal Document

A proposal document should (1) state the basic research question clearly and succinctly, (2) review relevant literature, (3) provide some demonstration of competence to carry out the research plan, and (4) propose specific steps that could be taken to complete the research. These fundamental elements should be clearly evident in the written document. It is usually most convenient to have section headings that identify these components.

Item (3) is the most difficult to formalize. The proposal should occur early in the research process, hence it is not necessary that the student obtain particular results before proposing. On the other hand, it is necessary that the student demonstrate that serious efforts have been made to launch the project. For instance, this section might describe

Semester	Defense deadline	Paperwork deadline
Spring	April 15	May 1
Summer	July 15	August 1
Fall	November 7	December 1

Table 2: Thesis defense and paperwork deadlines for each semester. Listed defense deadlines are intended to leave enough time for revisions, but the revision process **could take longer** if the committee or other faculty members in the department request major revisions. Listed paperwork deadlines are **not negotiable**.

efforts made that failed to solve the problem, provided the student can explain how these efforts helped to illuminate how the problem might be solved.

The document should be of quality comparable to that produced by \LaTeX , with an 11 or 12-point font, in a style similar to the \LaTeX document style “Article” with single spacing and standard margins. Its length must not exceed 15 pages, together with at most an additional 2–3 pages of references and 5 pages of figures and tables. Citations and the list of references should be done according to the style of a standard statistical journal such as the *Journal of the American Statistical Association*. Derivations and proofs should be included only as they are necessary to explain the work being proposed. Appendices or further documents may be used for additional derivations or auxiliary results, but the main document should be understandable on its own.

A \LaTeX template is available on the Resources page of the department website.

4.8 Thesis and Thesis Defense

Before a dissertation defense can be scheduled, the thesis committee must agree that the thesis is ready for defense. This does not require an official meeting of the committee members, but instead an agreement from each committee member that the work is likely to be completed in a timely manner. This decision would usually be based upon examining a draft of the thesis. (As a practical matter, a defense date may be reserved prior to this decision, but the defense may not proceed without the full approval of the committee. It can be challenging to find a room for a defense; it helps to do so as far in advance as possible.)

4.8.1 Date of Defense

Graduates must complete their defense and paperwork by the dates listed in Table 2. Paperwork submission requires that the student has presented their defense, all thesis revisions required by the thesis committee are complete, the student has completed and submitted the necessary forms, and the advisor has signed off on the final thesis. This

process can take several weeks, particularly if the committee requests major revisions. The student should allow adequate time for revisions of the thesis after the defense, prior to the awarding of the degree. (This is another reason why the student must consult with the thesis committee in advance of the defense.)

⚠️ If paperwork is submitted past the deadline, the student must graduate **at the end of the following semester. The student will need to be financially supported by a TA-ship or RA-ship for the whole duration of the semester.**

The defense, date, time and location should be determined at least four weeks prior to the defense. The candidate is responsible for scheduling the thesis defense so that all committee members and a majority of the regular faculty can attend. The candidate should send an email to the Ph.D. Coordinator (see [§ 3.1 Department Personnel](#)) when the defense time and location are available so an announcement can be sent to the Department, and so you can receive the necessary paperwork for defense and certification.

4.8.2 Defense Event

The format of the thesis defense event is as follows:

1. The student makes a presentation summarizing the main contributions in the thesis. The duration of the presentation is between 30 and 45 minutes, to be decided jointly by the student and the advisors, preferably in consultation with the thesis committee. The duration of the talk is not a criterion used to assess the quality of the defense.
2. The floor is opened for questions.
3. The committee discusses the thesis document and defense presentation privately. (Faculty in attendance may participate in this discussion as well.)
4. The student returns to discuss any comments, suggestions and corrections from the thesis committee.
5. The student will then edit the thesis document in accordance to the recommendations of the thesis committee.

Each candidate is expected to have a **complete** version of the dissertation at least two weeks before the thesis defense. This version should be sent directly to the members of the Ph.D. committee and also sent to the Academic Coordinator for posting on the Statistics website.

4.8.3 Awarding of the Ph.D.

After the thesis defense, the thesis advisor communicates to the Ph.D. candidate the list of required dissertation revisions from the comments of the thesis committee and the faculty members who have either read the thesis or attended the oral defense. In addition, committee members and other faculty may give the candidate lists of typographical errors and other minor changes to be made in the document. When the revisions have been successfully completed, the Ph.D. candidate sends the final document to the Academic Coordinator and to the advisor. Once the advisor approves the document, the Academic Coordinator will certify the candidate.

A student who does not complete their revisions and provide the required paperwork by the deadline listed in § 4.8.1 [Date of Defense](#) may not graduate at that time.

4.8.4 Dissertation Document

The University requires all Ph.D. graduates to submit their thesis to the University Libraries to be archived via the public KiltHub repository. The student is responsible for completing the steps detailed here: <https://guides.library.cmu.edu/etds>. Doing this will ensure the thesis is permanently archived and accessible to the public.

See § 4.17 [Dissertation Format](#) regarding the proper formatting of a dissertation.

4.8.5 Commencement Ceremony

The University hosts one Commencement ceremony per year, in May; students who wish to walk in the University commencement and hooding ceremony must meet the spring semester deadline. Summer and Fall graduates can attend the University commencement ceremony the following May.

4.9 Joint Degree Programs

The Department of Statistics participates in joint Ph.D. programs which focus research and coursework on particular domains in which Statistics plays a crucial role. Note that a student must be admitted into a joint degree program in order to pursue that degree (although most of the coursework and cross-disciplinary research opportunities that comprise the joint programs are available to all of our Ph.D. students).

4.9.1 Joint Statistics/Public Policy Ph.D. Program

The Department offers a joint program in collaboration with the Heinz College of Information Systems and Public Policy, leading to a Ph.D. in Statistics and Public Policy. This five-year program provides students with comprehensive preparation at the Ph.D. level in

4. THE PH.D. PROGRAM

Year 1	Fall Semester	Spring Semester
	36-699: Immigration to Statistics 36-707: Regression Analysis 36-705: Intermediate Statistics 90-908: Microeconomics 90-901: Heinz Ph.D. Seminar I	36-757: Advanced Data Analysis I 36-709: Advanced Statistical Theory I 36-708: Statistical Methods in Machine Learning 90-902: Heinz Ph.D. Seminar II
Year 2	Fall Semester	Spring Semester
	36-758: Advanced Data Analysis II 36-750: Statistical Computing 90-907: Econometric Theory and Methods 90-918: Heinz Ph.D. Seminar III	Complete 1st Heinz/ADA paper Heinz curriculum requirements elective Start 2nd Heinz paper
Year 3	Fall Semester	Spring Semester
		Complete 2nd Heinz/ADA paper Begin work toward thesis proposal

Table 3: A typical plan of coursework for the joint Ph.D. in Statistics and Public Policy. This plan can be modified on a case-by-case basis. An example is given in Table 4.

both statistics and public policy. The curriculum draws on existing courses in both Statistics and the Heinz College, recognizing that selected courses can meet, simultaneously, the usually-separate objectives of the Ph.D. programs in Statistics and Public Policy. Critical to the success of the joint program is the close collaboration among faculty members in Statistics and the Heinz College. While students will have separate faculty advisors in Statistics and in the Heinz College, their progress will be regularly assessed by a joint group of faculty. Students in this program have split TA duties between Statistics and the Heinz School, being supported one semester each academic year from each unit.

The actual curriculum for any given student will be tailored to their interests and needs, but the general strategy is similar: to meld the two sets of Ph.D. requirements into a coherent and useful set of courses, with similar core items. The first four semesters cover the main courses for the Ph.D. in Statistics while simultaneously introducing the student to the core disciplines of the Heinz College. In the fourth semester, students begin work on the second Heinz research paper. Either the first or second Heinz papers can satisfy the Advanced Data Analysis (ADA) requirement in Statistics. Table 3 shows a typical plan of coursework that would satisfy the requirements for the degree.

4.9.2 Joint Statistics/Machine Learning Ph.D. Program

This program differs from the standard Statistics Ph.D. program in its emphasis on machine learning (ML) and computer science. Students in this track will be involved in courses and research from both the Departments of S&DS and ML. To see the full joint program curriculum requirements, consult <https://www.ml.cmu.edu/academics/joint-ml->

4. THE PH.D. PROGRAM

Year 1	Fall Semester	Spring Semester
	36-699: Immigration to Statistics 36-707: Regression Analysis 36-700: Probability & Mathematical Statistics 90-908: Microeconomics 90-901: Heinz Ph.D. Seminar I	36-757: Advanced Data Analysis I 36-708: Statistical Methods in Machine Learning 90-902: Heinz Ph.D. Seminar II Heinz curriculum requirements elective
Year 2	Fall Semester	Spring Semester
	36-758: Advanced Data Analysis II 36-705: Intermediate Statistics 90-907: Econometric Theory and Methods 90-918: Heinz Ph.D. Seminar III	36-709: Advanced Statistical Theory I Complete 1st Heinz/ADA paper Start 2nd Heinz paper
Year 3	Fall Semester	Spring Semester
	36-750: Statistical Computing	Complete 2nd Heinz/ADA paper Begin work toward thesis proposal

Table 4: Alternative plan of coursework for the joint Ph.D. in Statistics and Public Policy.

[phd.html](#).

Before applying to the joint program, a student must:

- Take and pass 10-715, 36-705 and 10-716 (10-702 will count in lieu of 10716 if taken before Spring 2019) with a GPA of 3.5 or higher in these courses.
- Identify a S&DS faculty member who agrees to serve as their thesis advisor.
- Identify an MLD core faculty member who agrees to serve as their MLD mentor. Faculty with primary appointments in the Department of S&DS may not serve as ML mentors. The mentor will help guide the ML portion of the student's research, represent the student at the MLD student evaluation meetings, become a member of the student's thesis committee, and generally advocate for the student within MLD.

Applications must be emailed to the MLD PhD Program Administrator by May 31 to be considered for admission by the following Fall semester. Items to include are described at <https://www.ml.cmu.edu/academics/joint-ml-phd.html>. The MLD admissions committee may also request additional information as needed.

Interested students are encouraged to apply as early as possible in their graduate studies, so that their research direction can be informed by their interactions with their MLD mentor.

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

4.9.3 Joint Statistics/Engineering and Public Policy Ph.D. Program

The Department also offers a Ph.D. in conjunction with the Department of Engineering and Public Policy (EPP). As stated on their web site, research in EPP focuses on four main areas: energy and environmental systems, information and communication technology policy, risk analysis and communication, and technical innovation and R&D policy. These are areas which clearly require statistical methodology; students in this joint program will focus on developing novel methodology to address such challenges. For more information on EPP, see <https://www.cmu.edu/epp/>.

Students in this program are **not** required to take the Data Analysis Exam (unless they want to receive the MS in Statistics). Otherwise they are subject to all of the requirements listed above, plus the following:

- Theory and Practice of Policy Analysis (19-701)
- Quantitative Methods for Policy Analysis (19-702)
- Workshop in Applied Policy Analysis (19-705)
- A “teaching experience” which may be satisfied by
 - EPP Teaching Practicum (19-753)
 - EPP Project Management (19-752)
 - Teaching of a Statistics course
- Complete the EPP Part A Qualifying Exam

Further, students in this program are required to be enrolled in at least six units of courses other than Reading and Research. Students must choose at least two approved Social Science/Policy courses (24 units), including Applied Microeconomics (90-908 or equivalent), over the course of their program.

The EPP Part A Qualifying Exam is a research paper written under the supervision of an advisor from each department. The writing is followed by a 20-minute presentation with an extended Q&A session. The exam occurs following the third semester of study.

The thesis committee for a student in this program should contain at least two EPP faculty and at least two Statistics faculty.

4.10 Courses Outside the Department of Statistics & Data Science

Students are encouraged to take courses in other departments to broaden their training in statistical science. When they take such courses, statistics graduate students typically are treated like other students in the class and thus receive grades determined by the instructor.

4.11 English as a Second Language

Students who are just beginning their graduate school experience often find the first few weeks to be anxious times. Adjusting to a new university, finding housing, not knowing anyone in a new city, and worrying about one's preparation are only some of the many concerns a new graduate student may experience. These problems of adjustment are more difficult for students coming from foreign countries. Such students may have been educated in universities that are very different from CMU. Moreover, those students may be unfamiliar with American culture and may have some difficulty speaking and understanding English. Furthermore, all graduates from our department will need to have strong English language communication skills to function comfortably as professional statisticians, for example to present papers at meetings of the professional societies. Carnegie Mellon University has resources to assist foreign students. The Language Support in the Student Academic Success Center (SASC) has many programs available for foreign students ranging from English as a Second Language (ESL) courses to seminars on handling job interviews.

New graduate students entering the Department of Statistics for whom English is not their native language are required to take advantage of the programs at the SASC. This process begins at the University-wide orientation for graduate students where students are required to attend a "Language Support Orientation." The most recent schedule for this can be found at <http://www.cmu.edu/icc/language/training/checkin.shtml>. From this website:

In this 1-hour seminar, learn about common language and cross-cultural issues experienced by international students at CMU, and determine what language support is right for you.

In addition, all graduate students for whom English is not their native language must take the ITA test administered by the Language Support in the Student Academic Success Center. This test is vital because, in accordance with state law, CMU will not permit any non-native English speaker to have contact with students as an educator (in the classroom, laboratory, or office) unless they are certified by the SASC. Graduate students are required to have a certain level of fluency in English before they can instruct in Pennsylvania, as required by the English Fluency in Higher Education Act of 1990. Through this Act, all institutions of higher education in the state are required to evaluate and certify the English fluency of all instructional personnel, including teaching assistants and interns. The full university policy can be reviewed at: <https://www.cmu.edu/policies/faculty/evaluation-certification-english-fluency-instructors.html>. The fluency of all instructional personnel will be rated by Language Support in the Student Academic Success Center to determine at what level of responsibility the student can TA. Hence, your possible roles as a TA are greatly diminished without this certification. The time at which the ITA test is taken will be decided in consultation with the SASC and the Director of

Graduate Studies. You should not sign up for taking the test prior to your first semester, unless instructed to do so by the Director of Graduate Studies. The SASC may require and/or recommend that a student complete a certain number of hours of work at their center prior to taking the ITA test. For more information on the ITA test, see <https://www.cmu.edu/student-success/programs/language-support/index.html>.

In all cases, all nonnative speakers are required to complete a 3-hour seminar entitled “Foundations of Fluency for ITAs” as soon as possible during their time at CMU. Further, until a student achieves the highest possible score on the ITA test, the Department requires that the student complete the stated number of hours (usually, 15) per semester at the SASC. This work will serve to build and strengthen language skills. **Failure to attend to this requirement may cause reduction or termination of financial support.**

A final note: For the purposes of the University policy, and in accordance with Pennsylvania law, a citizen of an English-speaking country, a student who attended an English-speaking undergraduate institution, and even a student who went to high school in the United States could each be considered non-native English speakers. If you think there is a chance you may be considered a non-native English speaker, you probably will be considered as such. Students with strong English skills will typically easily pass the ITA test, or maybe even be told at the time of orientation that they need no further interaction with the SASC. Nevertheless, it is important that these students attend the orientation.

4.12 Maximum Time to Degree

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

Under extraordinary circumstances, such as leave of absence, military or public service, family or parental leave, or temporary disability, a school or college may, upon the relevant department’s recommendation and with the written approval of the dean, defer the lapse of All But Dissertation status for a period commensurate with the duration of that interruption.

4.13 Graduate Student Consulting and Outside Employment

Graduate students in the Department of Statistics are ordinarily expected to devote full attention and energies to their educational and research endeavors during semesters for which they are enrolled as full-time students and during summers for which they are receiving departmental financial support. Coursework and research assignments are planned

to completely occupy full-time students, which ordinarily precludes outside employment and consulting. Students are generally advised to decline such work and concentrate on their graduate studies.

In exceptional cases, there may be opportunities for outside consulting or employment which would provide helpful experience in addition to remuneration. However, coursework, research, and teaching assignments must take precedence over outside work, and in no circumstances should external employment commitments exceed one day per week. Before assuming such outside commitments all full-time graduate students must receive the approval of their academic advisor, the Director of Graduate Studies, or the Department Head. Also, graduate students should be careful about consulting where conflict-of-interest and intellectual property issues may arise. In such cases, prior approval of the Department Head must be obtained. Information on University policy concerning intellectual property is contained in the University's Student Handbook.

4.14 Communication Between Students and Faculty

4.14.1 Advising

New graduate students will be advised by the Director of Graduate Studies (see [§ 3.1 Department Personnel](#)). Graduate students need good advice concerning their academic program and should consult regularly with the Director of Graduate Studies. Students may seek advice from other faculty (and students) regarding choices of courses, ADA project, and so forth. Ultimately, however, any plans must be approved by the Director of Graduate Studies.

The second stage in the advising system is the Ph.D. thesis stage. This usually occurs after a Ph.D. degree candidate has taken the core courses. At this stage of a student's program, they are encouraged to talk with many faculty members about possible thesis topic areas. After these discussions, the student should select a particular faculty member and engage in reading and research in a focused area to identify a thesis topic. The faculty member supervising this reading and research project will normally become the student's academic advisor. The student is not committed to continue on this project. It is possible for a student to change projects and advisors at this stage; however, such changes are relatively rare as it is assumed that the student will carefully select the project.

Overall, the Department prides itself on its flexible and non-competitive program and encourages discussion on all matters of concern. Within particular classes, students are encouraged to discuss difficulties with the instructor. This is helpful to both the instructor and the student. The instructor receives feedback about the class, its level, and its pace, as well as specific difficulties students may be having. On the other hand, if a student is having difficulties in a class because of some gaps in their background, then discussion with the instructor may lead to some changes in the student's program. If, for any reason, a student feels uncomfortable talking to an instructor they should bring their concerns

to their graduate advisor, the Director of Graduate Studies, the Department Head, or the Student Advisory Committee, as discussed in the next subsection.

4.14.2 Additional Vehicles for Communication

The Department encourages open communication among all members of our community, especially between students and faculty. Students are invited to raise academic or personal issues with any faculty member. Nevertheless, there may be situations, such as concerns about the quality of teaching in a particular course, where direct interaction with a particular faculty member is difficult for a student. In such a situation, all graduate students should be aware that a major part of the Department Head's duties is addressing such issues. Furthermore, all such complaints or concerns will be handled in confidence by the Department Head.

A second vehicle for communication is the Department of Statistics & Data Science Student Advisory Committee (SAC). This is a very important committee which serves as a formal link between the graduate students and the faculty. The SAC deals with a range of issues such as providing input for changes in the department curriculum and evaluating faculty who are candidates for promotion or tenure. The members of the SAC are elected by the students themselves and the role which the SAC plays within the department depends very much upon its membership. A strong SAC can contribute greatly to the department.

The Department Head (and/or the Director of Graduate Studies) meets with groups of students on a regular basis throughout the year to discuss general issues of concern.

4.15 Evaluation of Students

Twice each year the faculty meets to assess student achievement and provide feedback so that each graduate student is aware of their standing, progress toward a degree, any necessary remedial work, and any possible change in financial support. Each student receives a letter summarizing the results of the faculty discussion.

The first faculty meeting is held at the end of the Fall semester. In addition to offering an evaluation of a student's academic progress, the letter often contains information on financial support for the next academic year for students whose program would ordinarily continue beyond the current semester. In most cases, a student's support is renewed, subject only to continued satisfactory performance. In rare cases, specific requirements are described which a student must meet in order to have their financial support continued beyond the current semester.

The second faculty meeting is held in May, at the conclusion of the Spring semester. The primary topic of discussion is an evaluation of students in light of the results from the Masters and Ph.D. examinations.

Since every student is evaluated at these meetings, it is very important that each student meet with their advisor, the Director of Graduate Studies, or the Department Head to review academic progress and standing. If at any time a student is making inadequate progress toward a degree, that student will be notified in writing.

4.16 Outside Work and Summer Training

4.16.1 Outside Work

The term *outside work* refers to paid or unpaid activities that are not under the intellectual oversight or purview of the faculty and therefore do not constitute training. The Department's position is that outside paid work is not compatible with full-time PhD student status, as students are expected to devote all their work time to the academic activities required for the completion of their degree. Therefore the Department discourages any outside work. However, it does not prohibit it. Students who still wish to engage in outside work may do so during their free time and with the understanding that any reduction in the time and effort towards the completion of their degree due to such engagements may jeopardize their good standing in the program.

4.16.2 Summer Training


Students are required to spend a significant portion of each Summer engaged in activities that are directly relevant to the Ph.D. curriculum. Such activities include, but are not limited to, teaching and course development, academic research, or internship in industry or other institutions. Summer is an ideal time to initiate new collaborations and lines of research, to build teaching and mentoring skills, and to further develop professional and academic skills at companies and institutions that may offer research, training and career opportunities not readily available on campus.

These Summer activities are an integral component of our Ph.D. curriculum and training, as much as the regular coursework offered during the academic year. Therefore, students are required to discuss their Summer plans in advance with their advisors or the Ph.D. director, and to communicate them to the Department.

Students who spend their Summer working on research projects should enroll in the elective credit-bearing course 36-995 (Reading and Research) under the supervision of one or more faculty. All Ph.D. students receiving summer support that is processed by the Department must be registered for 36 units in the 36-995 Reading & Research course. See [§ 5.1.4 Summer Support](#) for further details on summer financial support.

Students conducting Summer internships should register for the elective, credit-bearing course 36-997 (Practicum in Statistics) with one or more supervising faculty. In selecting internships, students will work with their mentoring faculty to ensure that the objectives and type of work being conducted fit with the student's academic and long-term goals.

Throughout the internship, students will communicate regularly with the mentoring faculty and provide updates on activities and progress. After the internship is concluded, students will write a report describing the nature of the completed work and the results obtained, and will meet with the mentoring faculty members to discuss it in details and integrate the work into downstream academic and career objectives.

 International students planning to take a summer internship position must complete CPT or OPT requirements **several months in advance** of the summer to ensure they will be legally permitted to work. The Office of International Education provides resources and training for this process, and students should consult these materials early, ideally in the winter preceding their internship.

4.17 Dissertation Format

The general rules with respect to form shall follow those set forth by K.L. Turabian, *A Manual for Writers of Term Papers, Theses and Dissertations*, 4th Edition (University of Chicago Press, Chicago, Illinois 60637). For details that may be particularly relevant in statistics consult the style guide in the *Journal of the American Statistical Association*. A \LaTeX template is available on the Resources page of the department website.

4.17.1 Title Page, Signature Page, and Abstract

The first page of each dissertation must be a signature page in the general form. The signature page will be provided to you by the Academic Coordinator prior to your oral defense. Upon the successful completion of the final oral examination, the signature page must be signed by the Advisor, the committee, and the Dean of Dietrich College.

The signature page should be followed by the title page. The title page of the dissertation should follow the format shown on the sample attached. If a variation of format is used, be sure that all the information shown on the sample page is included. The abstract must not exceed 1,000 words. It should be double-spaced.

4.17.2 Production of the Manuscript

Typed matter must be double-spaced, clearly legible and free of typographical error. Footnotes and long quotations may be single-spaced. The text should fill an area not larger than six inches by nine inches on one side of an 8.5 by 11 inch sheet, allowing a minimum margin of one and one-half inches on the left for binding and one inch on the other three sides. Font size should be 11-point. It is recommended that \LaTeX with book document style be used.

In general, for computer-generated text and figures, clarity of production should be the guide for both text and figures. The font size should remain 11-point for all legends

and lettering on figures. Data and computer programs may be shown as direct computer output, provided the general rules with respect to clarity, size, and margins are followed.

4.17.3 Equations, Charts, Graphs, Tables, and Figures

Formulas and equations should be neatly formatted. Drawings should be kept within the bounds of a six-inch by nine-inch rectangle aligned as described above. Lines on graphs or illustrations should be identified by labels or symbols rather than colors. Shaded areas should use cross-hatching, and not color, for contrast. Data should be presented, where possible, in numbered, titled tables.

Numbering of equations and references to equations in the text should follow the form used in a standard professional journal such as the *Journal of the American Statistical Association* or *The Annals of Statistics*. Charts, graphs, maps and tables that are larger than the standard page size might have to be used in the dissertation. It is recommended that such pages be avoided unless absolutely necessary.

4.17.4 Dissertation Title

A dissertation can be a valuable source for other scholars only if it can be located easily. Modern retrieval systems use the words in the title and sometimes a few other descriptive words to locate a dissertation. It is essential that the title be a meaningful description of the content of the dissertation. Avoid oblique reference, and be sure to use word substitutes for formulas, symbols, superscripts, subscripts, Greek letters, and so on.

4.17.5 Usual Order and Content Format

Dissertations typically have three main parts: preliminaries, text, and references, which may be followed by appendices.

4.17.6 Preliminaries

- a. Title page, followed by the copyright notice if statutory copyright in the dissertation has been or is to be claimed. Essential components of the copyright notice are: copyright symbol, full legal name of author, year in which copyright is secured by publication. The copyright notice may appear as follows:

Copyright by John Arthur Brown 19-
All Rights Reserved

- b. Preface, including acknowledgments

- c. Table of Contents, with page references
- d. List of Tables, with titles and page references
- e. List of Illustrations, with titles and page references

Text

- a. Introduction
- b. Main body, with larger divisions and more important minor divisions indicated by suitable, consistent headings

4.17.7 References

Appendices (if needed)

4.17.8 Page Numbering

Each page in a dissertation, except the blank page following the signature page, should be assigned a number. The following plan of page numbering generally is accepted:

1. For the preliminaries, use small Roman numerals (i, ii, iii, iv, etc.). The numbering begins with ii; the title page counts as page i, but the number does not appear.
2. For the remainder of the dissertation—including the text, illustrations, references and appendices—use Arabic numerals (1, 2, 3, 4, etc.). Each page must be numbered. Try to avoid use of letter suffixes such as 10a, 10b. The numbering begins with 1 and runs consecutively to the end of the dissertation. On pages carrying a major heading—such as the first page of a chapter—the page number should be placed at the center top. If the description of an illustration is too long to be placed on the same page, it should be placed on the previous page, not on an unnumbered page.
3. If there are more volumes than one, each volume should contain a title page duplicating the title page of the first volume. If the volumes are separate entities it would be well to identify them further as Volume I, II, etc. In any case, the numbering may follow consecutively from one volume to another, or begin with Arabic I at each new title page.

4.17.9 Footnotes

Footnotes should be avoided. If necessary, footnotes should be placed at the bottom of the page in a style similar to that used by L^AT_EX. Footnotes should be numbered consecutively throughout each chapter.

4.17.10 Reproduction of Data

Data used in the dissertation should be made accessible to the reader in substantially complete form. Generally, this means that raw data should be reproduced in a convenient manner in one or more appendices to the main document. In the case of data gathered from readily available published sources, specific detailed citations will suffice, provided that a minimum of one set of the raw data used in the dissertation, complete in all respects, is presented with the original copy submitted to the Library. Deviations from a procedure of full disclosure, e.g., in connection with large-scale computer data bases, must be specifically approved by the Dissertation Committee and explained fully in the dissertation.

4.17.11 Computation-Based Results

In the case of computer calculations essential to the central arguments of the research, these must be fully and clearly explained. If the computer programs which provide the basis for these calculations are originated by the student, the student is required to provide a program listing and minimal documentation on the program in the thesis. The program listing and documentation would normally be included in a separate appendix to the thesis. However, in the case of extensive computer work considered by the student and their advisor to be too long to include in the dissertation, presentation in the form of tables elucidating important components is acceptable. In this case, the student is advised to submit a separate internal report giving further details. Standard subroutines or packaged programs which routinely are included as software support to a computer installation and which can be readily obtained are exempted from this requirement, but these should be clearly cited and the source of these programs made apparent in the thesis. In every case the student should comply with the standards described in "The reporting of computation-based results in statistics" by D.C. Hoaglin and D.F. Andrews in *The American Statistician*, Vol. 29, No. 3, pp. 122-126 (1975).

4.17.12 References

Citations of the professional literature should be standardized throughout the dissertation. The form of citation should be consistent with the form used in a standard professional journal such as the *Journal of the American Statistical Association* or *The Annals of Statistics*.

5 Financial Support and Payroll Information

5.1 Financial Support

Financial support awards are made in the initial offer letter admitting students to the graduate program. The most common award is for a one-year period and includes tuition and

a nine-month stipend. The monthly stipend requires a student to serve as a teaching assistant or a research assistant as part of the degree requirement. Those duties should require no more than 10 to 12 hours per week. Duties typically involve assisting faculty with grading of homework, holding office hours, and serve as a teaching assistant during the courses. These duties provide students the opportunity to develop teaching skills. TA evaluations document the teaching experience and may be beneficial for post-PhD job searches. All conduct policies and departmental expectations for PhD TAs are laid out in the [StatDS TA handbook](#). All policies and laws regarding TA appointments are communicated during incoming student orientation. RA assignments with faculty serve as an opportunity to work with faculty on sponsored projects that embark on their own research interests for future job opportunities.

Some students may receive financial support from outside fellowships such as those awarded by the National Science Foundation, the Howard Hughes or Hertz Foundation, or the Office of Naval Research. These external awards typically provide partial tuition support and a stipend. The Department of Statistics & Data Science often supplements the partial tuition awards to provide full tuition support.

Some of the fellowship-supported students may wish to earn additional support. Typically, the Department will offer them the opportunity to be a teaching assistant or a course assistant.

Students may also receive financial support via grants and gifts supporting research projects. To allow adequate time for course planning, this notice must be received by August 1 for the fall semester and December 1 for the spring semester. The funding must be available by the deadline; funding received after the deadline can be used to support students in a later semester.

5.1.1 Student Fees

All CMU students who enroll for 19 or more units in a semester will see several fees on their student accounts. These fees are covered by the department. Student Activities Fee: the monies generated by this fee are administered by the CMU Student Government organization to support various campus activities. The Graduate Student Assembly (GSA) receives some of this money, and it in turn divides some of its allocation among graduate student departments. Transportation fee: the fee allows you to ride PAT buses by showing your university ID. Technology fee: supports information technology, software licensing, and the Andrew email system.

5.1.2 Student Health Insurance

Students are required to have health insurance. One way to do that is to purchase such insurance from the university. If you elect to enroll in CMU's Student Health Insurance Plan (SHIP), the Department and University will cover the premium cost for your individ-

ual 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 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.

5.1.3 Continuation of Financial Support

When the Department admits a student with financial support, it does so with the expectation that this support will last five years, as long as the student is making satisfactory progress toward their degree. Support beyond the fifth year will be considered on a case-by-case basis. Each January and May, the Department Head writes a letter to each student outlining academic progress. Commitments for financial support are usually made in the January letter.

Support beyond the fourth year for a student who has not finished their proposal will be considered on a case-by-case basis. Continuing support for students in a joint program will be considered on a case-by-case basis.

Students who fail to attend to their TA duties or fail to attend to requirements for their mastery of the English language with the Student Academic Success Center may be subject to a reduction in stipend.

A domestic student can switch to All But Dissertation, In Absentia (ABS, <https://www.cmu.edu/es/docs/abd-status-detail.pdf>) status if the student is no longer supported by the Department, is not on campus, has completed all coursework, and has completed the thesis proposal. Once on ABS status, a student works to complete the dissertation but does not pay tuition. International students on a student visa, however, must maintain "full-time status" and hence are not allowed to switch to ABS status. Fortunately, for an unsupported student (paying their own tuition), enrollment in five units is sufficient for "full-time status." Students are limited to four semesters in this "reduced" full-time status. **All students** (domestic and international) must be enrolled during the semester in which their dissertation is certified. <https://www.cmu.edu/policies/student-and-student-life/doctoral-student-status.html>. This policy sets forth a definition of All But Dissertation (ABD) status, time limits on doctoral candidacy status, a definition of being In Residence and In Absentia for candidates and the tuition and fees charged for candidates in each status. The ABD Status Agreement Form can be found at <https://www.cmu.edu/hub/docs/abd-status-agree.pdf>.

5.1.4 Summer Support

The Department arranges for summer work whose pay will be approximately equivalent to a regular stipend over the months during which the student works. These Summer duties are all considered part of the education experience for the PhD program. The most

common way in which students earn summer support is through teaching and grading. Graduate students teach for one of two six-week periods during the summer. Some graduate students are supported by faculty research projects or Departmental training grants. In late February or early March, the Department Head collects information from students about their summer plans and wishes. Some students may plan to take a position outside CMU, while others may desire to stay at CMU and seek employment here. Plans frequently change, but it is important to keep the Department Head informed. See [§ 4.16.2 Summer Training](#) for additional information on summer options, internships, and registration requirements.

Please note that, except in special cases, all forms of summer support require that the student be in residence at CMU. You cannot, for example, perform research from another location. Exceptions may be made in cases where the research or teaching is taking place at the remote location. Summer session 1 begins at the end of May and runs for 6 weeks ending at the end of June. Summer session 2 begins at the end of June and runs for 6 weeks ending mid-August.

Non-native English speaking students need to ensure that their language skills are sufficient for teaching at CMU. Those students must be certified by the Intercultural Communication Center before they will be permitted to teach. Thus, certification may be required for summer support.

5.2 Travel Funding

The Department encourages students to attend and participate in statistics and data science conferences. These conferences give students a chance to meet other researchers and learn of their work. They also provide students the opportunity to present their own work and to make contacts that could lead to employment and future research collaborations.

To this end, faculty are expected to budget for conference travel in their grant proposals, and students are encouraged to apply for travel awards and fellowships. Because such funding is not always available, the Department can, in some cases, provide funding to enable a student to attend a conference. There are three prerequisites to getting this funding. Students considering attending a conference should:

1. Request funding from one or more supervising faculty members who have available funding from grants or discretionary funds
2. Apply for funding through the lottery administered by the Graduate Student Assembly
3. Apply for funding sponsored by the organization hosting the conference, if any.

These steps can happen in parallel.

If additional funding is required, students can request Department funding through an online form. The form requests a short description of the reasons for traveling, including information about the student's professional role in the event (e.g., invited speaker, awardee, participant); a brief budget outlining the costs the student will face; a confirmation that the student fulfilled the prerequisites listed above; and a description of how this conference is relevant to the student's professional goals.

The Business Manager will determine the student's travel funding level, in consultation with the student, Graduate Directors, any supervising faculty, and the Department Head. Requests will be prioritized based on several criteria:

- The availability of Departmental funds to support the student. The Department may not have funds to meet all requests for conference funding.
- The availability of other funds to support the student. Departmental funds cannot be combined with GSA funding.
- The seniority of the student. Fourth- and fifth-year students will receive higher priority, as conferences may benefit their job search and professional standing. Conference funding for students past their fifth year, or who have not met the deadline to make their thesis proposal, will be at the Department's discretion.
- The nature of the trip as it relates to the students' professional development. Higher-priority conferences have the student in a central role and are opportunities that are exclusive: giving an invited presentation on one's research, receiving an award, being an invited participant at a limited-attendance conference or workshop that is central to the student's research, or an invitation-only networking or related event. Presentations of the student's work at selective conferences or workshops are also considered relevant for professional development. Presentations at poster sessions, less selective conferences, or conferences not directly relevant to the student's work receive lower priority.

The request form must be completed in advance of the conference to be attended, but can be completed before the student knows their proposed presentation will be accepted by the conference. **The Department will follow the same request deadlines used by the Graduate Student Assembly's conference funding program** (see <https://www.cmu.edu/graduate/professional-development/conference-funding/>). These deadlines are *several months in advance* of the conference travel to be funded, so students and advisors must plan ahead. The Department will not be able to fund travel if the request was not made in a timely manner.

Students are expected to apply for both GSA and Departmental funding simultaneously (as well as other relevant funding sources, as described above). After the Graduate Student Assembly has decided whether to award funds, the Department will review funding applications, prioritize them based on the above criteria, and notify students of the funding

they will receive, if any. High-priority requests, based on the criteria above, will receive a maximum of \$750; other requests will receive a maximum of \$500.

Students are advised not to purchase tickets or pay registration fees until they know they will receive funding to cover the costs.

5.3 Payroll Dates

Students are paid semi-monthly. All pay is distributed by direct deposit, and pay advices are available on-line.

5.4 I-9 Forms and Employment Eligibility Verification

If you are receiving a stipend, are a TA, or are planning to have a position with CMU, then Employment Eligibility Verification is required. Form I-9 must be completed within 3 business days of beginning work for any type of compensation (stipend or employment). Additional details are highlighted below. To ensure compliance with federal law, CMU maintains the Employment Eligibility Verification (I-9) Policy 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, and to schedule an appointment to complete the Form I-9 please see CMU's Guidance for Completing the Form I-9 and E-Verify Requirements at CMU at <https://www.cmu.edu/hr/service-center/new-faculty-staff/i-9-e-verify/index.html>.

5.5 Change of Address and Phone Number

Address or phone number change should be reported to both the Business Manager and the HUB. This will help to ensure that all University records are up to date.

5.6 Social Security Numbers (international students only)

All students must have a valid Social Security number to be added to the payroll system. Once you obtain one, both the Department's Academic Coordinator and the HUB must be notified. This will ensure that all databases are kept current and parallel.

6 Student Rights

6.1 Grievance Procedures at the Departmental Level

From time to time students may have worries or complaints about some aspect of life within the Department. Graduate students are encouraged to discuss such concerns with any faculty member, especially their advisors or the Department Head. Indeed, an important part of the Department Head's job is to hear from graduate students about the problems they face. The Department tries to solve problems informally and has so far always succeeded in doing so, but there may come a time when a problem arises that cannot be resolved through informal procedures. To provide for this situation, there is a formal grievance procedure.

The investigative process will commence when a student files a grievance in writing with the Department Head. The grievance will be heard by a three-person board including the Department Head, a member of the Student Advisory Committee and a Statistics Department faculty member or suitable substitutes, as determined by the Department Head. The board will render a written recommendation, with copies sent to the student, the Dean's office, and those against whom the grievance was brought (if specific individuals are involved). No person against whom the grievance is brought will have a role in investigating it. If the Department Head is among those against whom the grievance is brought, then the Dean will be asked to designate another senior faculty member from the Statistics Department to substitute for the Department Head on the three-person board.

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

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

6.2 Grievances within the College of Humanities and Social Sciences

Graduate students are encouraged to discuss their concerns with members of their academic department. If they wish, the Associate Dean for Academic Affairs and the Dean are also available at any stage of the process. All discussions will be considered confidential.

Any graduate student who has exhausted normal grievance procedures within the Department may present a grievance to the office of the Dean of the College. The Dean may request statements or testimony from other parties involved, and will consider the

grievance in an ad hoc committee composed of the Dean, a faculty member from a department not involved in the grievance and a graduate student from a second uninvolved department. The committee will present its decision in writing to all parties involved.

Graduate students will find the Summary of Graduate Student Appeal and Grievance Procedures on the Graduate Education Resource webpage. <https://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html>.

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. Additionally, students may confer with the Graduate Education Office (graded@andrew.cmu.edu), on issues of process or other concerns as they navigate conflicts.

6.3 Assistance for Individuals with Disabilities

The Office of Disability Resources at CMU 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.

6.4 University Contacts and Procedures

Provost James H. Garrett, Jr. personally serves as the advocate for graduate students in the central administration. It is her responsibility to ensure that issues addressed by the departments, colleges and university are handled fairly and adequately. She encourages any graduate student to discuss matters with her which they believe might be inappropriate to raise at the department or college level.

The Dean of Student Affairs also meets regularly with graduate students. Students are likewise encouraged to speak directly to their graduate student representatives and to

officials of the Graduate Student Organization.

If a conflict cannot be resolved at the Department or College level, an appeal may be made to the Provost at the request of one of the parties involved. The Provost may handle the case with the advice of others and/or choose to refer the case to a committee.

6.5 Safeguarding Educational Equity Policy Against Sexual Harassment and Sexual Assault

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 policy can be viewed in its entirety at: http://www.cmu.edu/policies/documents/SA_SH.htm. 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
- University Health Services, 412-268-2157
- Counseling & Psychological Services, 412-268-2922

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 <https://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.

6.6 Maternity Accommodation Protocol

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.) may be reviewed during this meeting. Doctoral students who receive an academic stipend funded by CMU 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.

6.7 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.

6.8 Change of Address

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

6.9 New Policies

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 the case in which degree requirements are changed and certain courses no longer exist, the Department will try to find some compromise that would allow those students to satisfy the original requirements.

7 University Policies & Expectations

It is the responsibility of each member of the CMU 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: <http://www.cmu.edu/student-affairs/theword/index.html>
- 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.
- University Policies Website: <http://www.cmu.edu/policies>
- Graduate Education Website: <http://www.cmu.edu/graduate/policies/index.html>
- 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.

Please see the appendices for additional information about The Word and University resources.

8 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 <http://www.cmu.edu/police/annualreports>.

9 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/>.

A Highlighted University Resources for Graduate Students

A.1 Key Offices for Graduate Student Support

Graduate Education Office <https://www.cmu.edu/graduate>; grad-ed@cmu.edu

The Graduate Education Office provides central support for all Master's and Doctoral students with a focus on their academic experience at Carnegie Mellon. The Graduate Education Office serves as a hub for connecting graduate students to relevant campus experts and resources to support their academic success, understanding of university level policies and practices and to assist them in advancing their personal and professional development.

Examples of resources offered through the Graduate Education Office 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 Graduate Education Office 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 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 Emergency Student Loan (ESLs) process. Emergency Student Loans are made available through generous gifts of

alumni and friends of the university. The Emergency Student Loan is an interest-free, emergency-based loan repayable to the university within 30 days. Loans are available to enrolled students for academic supplies, medication, food or other expenses not able to be met due to unforeseeable circumstances.

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

Center for Student Diversity & Inclusion <https://www.cmu.edu/student-diversity/>

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

The Center offers resources to enhance an inclusive and transformative student experience in dimensions such as access, success, campus climate and intergroup dialogue. Additionally, the Center supports and connects historically underrepresented students and those who are first in their family to attend college in a setting where students' differences and talents are appreciated and reinforced, both at the graduate and undergraduate level. Initiatives coordinated by the Center include, but are not limited to:

- First generation/first in family to attend college programs
- LGBTQ+ Initiatives
- Race and ethnically-focused programs, including Inter-University Graduate Students of Color Series (SOC) and PhD SOC Network
- Women's empowerment programs, including Graduate Women's Gatherings (GWGs)
- Transgender and non-binary student programs

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.

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 <https://www.cmu.edu/teaching/graduatestudentsupport/index.html>.

Graduate Student Assembly <https://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 gradu-

ate 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) <https://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.

Carnegie Mellon Ethics Hotline <https://www.cmu.edu/hr/resources/ethics-hotline.html>

The health, safety and well-being of the university community are top priorities at Carnegie Mellon University. CMU provides a hotline that all members of the university community should use to confidentially report suspected unethical activity 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>.

A.2 Key Offices for Academic & Research Support

Computing and Information Resources <https://www.cmu.edu/computing>

Computing Services maintains and supports computing resources for the campus community, including the campus wired and wireless networks, printing, computer

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

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

Student Academic Success Center (SASC) <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 ddhight@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 condi-

tions for success. We assist students in improving time management, productive habits, organization, stress management, and study skills. Students will request support through the SASC 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 SASC 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 SASC 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 <https://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 <https://www.cmu.edu/research/>

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

Office of Research Integrity & Compliance <https://www.cmu.edu/research-compliance/>

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

A.3 Key Offices for Health, Wellness & Safety

Counseling & Psychological Services <https://www.cmu.edu/counseling/>

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

Health Services <https://www.cmu.edu/health-services/>

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

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

Campus Wellness <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 (RSLI) <https://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 <https://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 <https://www.cmu.edu/parking/shuttle/escort-and-policies.html>

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.

B The WORD

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

The WORD is Carnegie Mellon University's student online handbook and is considered a supplement to the department (and sometimes college) handbook. The WORD contains campus resources and opportunities, academic policy information and resources, community standards information and resources. 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