

Carnegie Mellon University
Department of Statistics & Data Science
Graduate Student Handbook

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This document provides an introduction to the graduate programs of the Carnegie Mellon University Department of Statistics. 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 Carnegie Mellon University 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.

1 Purpose of Handbook

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 publications about policy affecting graduate students:

- The Student Handbook includes information on general University policies;
- The Graduate Student Handbook provides the rules and regulations pertaining to graduate students and describes the various support programs and services provided by the University.

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 of this document.

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 (Alessandro Rinaldo) or the Business Manager (Laura Butler); the Department Head (Chris Genovese) is responsible for determining policy through consultation with the Director 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.

2 General information

The Department of Statistics is housed in various suites: BH 132, 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 132.

2.1 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 Intercultural Communications Center (ICC). 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 ICC. 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 Statistics 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 is required to attend the Department of Statistics orientation. You will receive information about this orientation from the Department.

2.2 Office 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 Beth Dongilli (BH 232Q) for keys. Most Ph.D. students have a locking file cabinet in their offices. Beth will also supply you with keys to your file cabinet.

2.3 Security

Although Pittsburgh does not have the crime problems of many major American cities, theft and assault remain occasional threats on or near the Carnegie Mellon 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 <http://www.cmu.edu/police/shuttleandescort/>.

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, students needing course materials should be asked to come to the Department during 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 extension 8-2323).

If you make use of the AV equipment that is installed in BH 232M and BH 229A please be sure to properly and completely shut them down once you are finished. These rooms should always be locked when they are not occupied.

2.4 Photocopier and Fax Usage

The Department has two photocopiers. The machine in BH 132 is especially well-suited for double-sided copying, collated copies, and large copy jobs. The machine in BH 229 should only be used for smaller copying jobs. Both copiers are networked, so pdf files can be created on them and sent to you via email.

Statistics graduate students are permitted to use the copiers for personal as well as Departmental purposes. When photocopying, pertinent copy information should be entered in the copier log.

- When making copies for a class, enter the course number on the log.
- When making copies for thesis research, the thesis advisor should determine how the copies should be recorded.
- When making copies for personal use, indicate that on the log; personal copies are billed at the rate of \$.05/copy and invoices are issued on a quarterly basis.

The fax machine is located in BH 132L and may be used for personal as well as Departmental document transmission. The Departmental fax number is 412-268-7828 (which is 412-CMU-STAT). After sending a fax the sender's name and billing information (agency funding the research, etc.) should be written on the activity report, which is produced by the machine, and then the report should be placed in the designated box.

2.5 Telephone Usage

Common phones in the student area can be used for calls within the Pittsburgh area.

2.6 Office Supplies

The Department does not provide personal office supplies for students. However, if supplies are needed for teaching or for research with a faculty member, requests may be made to one of the staff.

2.7 General Courtesy

Out of courtesy to everyone in the Department, all common areas (i.e., kitchen, lounge, copy rooms, and computer rooms) should be kept in good shape. Dirty dishes and utensils should not be left in the kitchen; spills should be cleaned immediately. The refrigerator is for short-term storage only; all items should be removed after a few days, before any spoilage occurs. Please label any bags or items in the refrigerator with your name or initials. The refrigerator is cleaned weekly and unlabelled items will be removed. All items in the copy rooms should be returned to their proper places immediately after use.

The Department provides each student with office space and access to computing facilities. Both of these 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 officemates. 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) and/or the Director of Graduate Studies.

Similar courtesies should be practiced in the use of shared computing resources. Computers play a vital role in all graduate students' classroom work and research, so students should also try to equitably share these resources. For example, students should not use Department computers for watching movies or playing games. More information is contained in the Department document on using computers.

2.8 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 returned as soon as possible, certainly within a month.

2.9 Academic Calendar

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

3 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.

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 Statistical Theory II (36-710)
- Advanced Data Analysis (36-757 and 36-795)
- Pass the Data Analysis Exam
- Satisfy the “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 may differ slightly; see Section 3.8 below.

Ph.D. students will also take the class *Immigration to Statistics* during their first semester. This course introduces each faculty member to new students via a half-hour lecture on a favorite topic. 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 further coursework. A variety of minis are offered every term that cover exciting topics in the field. Students are also encouraged to take courses in other departments to deepen their understanding of application areas.

The following is a template showing how a student could earn the Ph.D. degree (and also an M.S., see below) in four years. (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 Section 3.8 below.)

Year 1	Fall Semester	Spring Semester
	36-699: Immigration to Statistics	36-757: Advanced Data Analysis I
	36-707: Regression Analysis	36-709: Advanced Statistical Theory I
	36-705: Intermediate Statistics	36-708: Statistical Methods in Machine Learning
	36-750: Statistical Computing	
Year 2	Fall Semester	Spring Semester
	36-710: Advanced Statistical Theory II	Begin Work Towards Proposal
	36-795: Advanced Data Analysis II	
	An Elective, e.g., 10-701	

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. An oral dissertation proposal precedes the Ph.D. dissertation itself.

3.1 The Advanced Data Analysis (ADA) Project

In the Advanced Data Analysis (ADA) courses each student identifies a project on which they work for a calendar year, starting in January. The ADA project is done in collaboration with an investigator from outside the Department, under the guidance of a faculty committee. It culminates in a potentially publishable report that is presented orally and in writing. 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 being addressed by the project. In most situations this individual provides the data and the question to be addressed. 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. Students should develop the ability to explain and justify their chosen approaches to data analysis.

2. 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 over email, but personal interactions are also needed.
3. The project must utilize **real** data, not data simulated by a computer model.
4. The project must have a faculty advisor from inside the Department of Statistics. The student should meet regularly with his or her advisor, usually once per week.
5. The culmination of the project is a written document describing the work, along with a presentation to the Department. The project advisors, along with the instructor for ADA II, are responsible for determining when the written document is sufficient for passing. The presentation should be 25 minutes in length, with additional time allotted for questions and answers.

3.2 The 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. 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. 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.

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.

3.3 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 Intermediate Statistics (36-705), Applied Regression Analysis (36-707) and Statistical Methods in Machine Learning (36-708).
- Students must also complete additional graduate credits (i.e. 4 courses) chosen from a variety of options. These classes must contain at least nine units from each of the following categories
 - A collaborative research experience such as Advanced Data Analysis (36-757 and 36-795), Statistical Practice (36-726), or an independent research project (provided it includes data analysis).
 - Statistical methodology (e.g., methods minis, 10-701).
 - Statistical theory (e.g., 36-709 and/or 36-710).
- Students must pass the Data Analysis Exam.

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.

3.4 Grades in Ph.D. Courses

Ph.D. students may elect to receive PASS/FAIL grades or letter grades in all their courses, according to the following rules.

The following core PhD courses are by default PASS/FAIL for Ph.D. students:

36-705: Intermediate Statistics

36-707: Regression Analysis

36-750: Statistical Computing

36-699: Statistical Immigration

36-708: Statistical Methods in Machine Learning

36-709: Advanced Statistical Theory I

36-710: Advanced Statistical Theory II

36-757: Advanced Data Analysis I

36-795: Advanced Data Analysis I I

Ph.D. students may opt to receive final letter grades in the above core courses instead, by communicating this decision to the instructor. In particular, students intending to pursue a joint Stat/ML Phd or a secondary ML MS degree will have to make this choice for some of the above courses that are part of the joint curriculum because both programs have GPA requirements.

All the other Ph.D. courses offered by the Department and any electives from other Departments that Phd students may take remain letter grades by default. However, PhD students may choose to receive a PASS/FAIL grade instead. For courses offered by the Department, this decision has to be communicated to the instructor. For courses from other Departments, this request has to be submitted by the University PASS/FAIL deadline and has to be approved by the instructor.

3.5 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. 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. 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 his or her 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.

3.6 The 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. 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 his or her 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 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.
3. The student, in consultation with his or her advisor and committee, prepares a rough draft of the proposal document. The body of this text is limited 15 pages, excluding tables and figures. See the subsection "The Proposal Document" below. Thesis committee members must be given the rough proposal document at least one week before the formal proposal event.
4. 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 30 minute presentation of his or her research plans and objectives.
 - b. The floor is opened for questions.

- 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.
5. The student, in consultation with the thesis committee, revises the proposal document. The rules governing the length of this document will remain unchanged.
 6. 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 a one-week review period. Faculty comments should be directed to either the advisor or the student, as appropriate.
 7. After the student addresses any comments or issues that arise concerning the proposal document, the proposal is approved by the committee.

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/or advisor may encourage particular individuals to serve on the thesis committee, but cannot do anything that discourages any faculty from serving.

3.6.1 The Proposal Document

A proposal document should (1) state the basic problem 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 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.

3.7 The 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.)

Spring graduates must be complete by May 1 in order to be considered a May graduate. Summer and Winter completion dates are September 15 and January 15, respectively. “Complete” means that all revisions have been done and the degree is ready to be certified. Students who wish to walk in the University ceremony and hooding ceremony must meet the May 1 deadline. The candidate is responsible for scheduling the thesis defense so that all committee members and a majority of the regular faculty can attend. The defense, date, time and location should be determined at least four weeks prior to the defense. You should send an email to the Academic Coordinator when this information is available so an announcement can be sent to the Department.

The format of the thesis defense event is as follows:

1. The student makes a 30 minute presentation summarizing the main contributions in the thesis.
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 the any comments, suggestions and corrections from the thesis committee.
5. The student will then proceed to 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. The student should allow adequate time for further revisions of the thesis after the defense, prior to the awarding of the degree.

3.7.1 Awarding of the Ph.D.

After the thesis defense, the thesis advisor compiles a 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. The dissertation advisor presents the official revision list to the Ph.D. candidate, the director of graduate studies, and the department head. 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.

If the student does not obtain certification by the deadline listed above, he or she cannot graduate at that time.

3.7.2 Dissertation Document

The Department will provide one bound copy of the dissertation document to the candidate and one bound copy to the advisor upon request. Additional copies may be requested and paid for by the candidate. All copies to be bound must be given (in paper form) to the Academic Coordinator by the candidate.

The University provides a repository, Research Showcase, in which students can choose to include their dissertation. Information regarding Research Showcase can be found on the Library's website: <http://search.library.cmu.edu/services/deposit/> The Academic Coordinator will also be able to help you understand the implications of adding your document to the repository.

See Appendix A (Section 9) for information on the proper formatting of a dissertation.

3.8 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).

3.8.1 Joint Statistics/Public Policy Ph.D. Program

The Department offers a joint program in collaboration with the H. John Heinz III School of Public Policy and Management, 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 both statistics and public policy. The curriculum draws on existing courses in both Statistics and the H. John Heinz III 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 H. John Heinz III College. While students will have separate faculty advisors in Statistics and in the H. John Heinz III 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 his or her 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 H. John Heinz III College. In the fourth semester, students begin work on the second Heinz research paper, which also satisfies the Advanced Data Analysis (ADA) requirement in Statistics. The tables below show two typical plans of coursework that would satisfy the requirements for the degree.

Plan A:

Year 1	Fall Semester	Spring Semester
--------	---------------	-----------------

	36-699: Immigration to Statistics	36-608: Advanced Methods for Data Analysis
	36-700: Probability and Mathematical Statistics I	90-902: Heinz Ph.D. Seminar II
	36-607: Modern Regression	Statistics Elective
	90-901: Heinz Ph.D. Seminar I	Begin First Heinz Paper
	90-908: Microeconomics	
Year 2	Fall Semester	Spring Semester
	36-707: Regression Analysis	36-757: Advanced Data Analysis I (Heinz Second Paper)
	36-705: Intermediate Statistics	Heinz Elective
	90-918: Heinz Ph.D. Seminar III	36-709: Advanced Statistical Theory I
	Complete First Heinz Paper	
Year 3	Fall Semester	Spring Semester
	36-795: Advanced Data Analysis II (Heinz Second Paper)	
	36-750: Statistical Computing	Continue Work Towards Dissertation
	36-710: Advanced Statistical Theory II	

Plan B:

Year 1	Fall Semester	Spring Semester
	36-699: Immigration to Statistics	36-709: Advanced Statistical Theory I
	36-707: Regression Analysis	90-902: Heinz Ph.D. Seminar II
	36-705: Intermediate Statistics	Statistics Elective
	90-901: Heinz Ph.D. Seminar I	Begin First Heinz Paper
	90-908: Microeconomics	
Year 2	Fall Semester	Spring Semester
	90-907: Econometric Theory and Methods	36-757: Advanced Data Analysis I (Heinz Second Paper)
	36-710: Advanced Statistical Theory II	Heinz Elective
	90-918: Heinz Ph.D. Seminar III	Statistics Elective
	Complete First Heinz Paper	
Year 3	Fall Semester	Spring Semester
	36-795: Advanced Data Analysis II (Heinz Second Paper)	
	Heinz Elective	Continue Work Towards Dissertation
	36-750: Statistical Computing	

3.8.2 Joint Statistics/Machine Learning Ph.D. Program

This program differs from the standard Statistics Ph.D. program in its emphasis on machine learning and computer science. Students in this track will be involved in courses and research from both the Departments of Statistics and Machine Learning.

Students will be granted the joint degree if they meet two sets of program requirements corresponding to the two departments, namely the ML PhD Requirements and the Statistics PhD Requirements.

Before applying, a student must:

- Take and pass 10715, 10705 and 10716 (10702 will count in lieu of 10716 if taken before Spring 2019). Applicants are expected to have a GPA of 3.5 or higher in these courses.
- Identify an MLD Core Faculty member who agrees to serve as their MLD mentor. The mentor will help guide the ML portion of the student's research, represent the student at the MLD student evaluation meetings ('Black Fridays'), become a member of the student's thesis committee, and generally advocate for the student within MLD.
- Applications must be submitted by October 31 to be considered for admission by the immediately following Spring semester. Applications should be emailed to the MLD PhD Program Administrator, and must include:
 - Student's CV
 - Statement of Research Interests (one page will do)
 - CMU Transcripts (unofficial will do)
 - A short paragraph of recommendation from the home PhD Advisor (or PhD program Director if advisor has not yet been assigned)
 - Email from the MLD Mentor confirming their willingness to serve in that role.
 - The MLD admissions committee may request additional information as needed.

The joint PhD thesis committee must include one MLD Core or Affiliated Faculty and one core faculty from the Department. The thesis proposal/defense must be announced to the MLD community. There is no formal admission to the program.

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

3.8.3 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 <http://www.epp.cmu.edu/>.

Students in this program and **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.

3.9 Courses taken outside the Department of Statistics

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.

3.10 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 Carnegie Mellon University. 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 Intercultural Communication Center (ICC) 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 ICC. 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/languagetraining/checkin.shtml>. From this website:

The session offers guidance and discussion of common language and cross-cultural issues experienced by international students at CMU. Students who attend this session learn how to anticipate language challenges and to determine if language support is right for them. Note that the session is required before students can register for ICC classes.

In addition, all graduate students for whom English is not their native language must take the ITA test administered by the ICC. This test is vital because, in accordance with state law, Carnegie Mellon University 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 ICC. 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: www.cmu.edu/policies/documents/EngFluency.html. The fluency of all instructional personnel will be determined by each department. 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 ICC 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 ICC 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 <http://www.cmu.edu/icc/testing/ITA/index.shtml>.

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 ICC. 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 ICC. Nevertheless, it is important that these students attend the orientation.

3.11 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, a course assistant or a research assistant. With occasional exceptions, those duties should require no more than ten to twelve hours per week.

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 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.

All Carnegie Mellon students who enroll for 19 or more units in a semester must pay their Student Activities Fee (currently \$107/semester) at The Hub, located in Warner Hall. The monies generated by this fee are administered by the CMU Student Government organization to support various campus activities. Additionally, a \$105/semester fee for transportation is assessed your student account. The fee allows you to ride PAT busses by showing your university ID. The

Graduate Student Assembly (GSA) receives some of this money, and it in turn divides some of its allocation among graduate student departments. Students are not responsible for the Technology Fee (\$185), however. Students are also required to show evidence of health insurance. One way to do that is to purchase such insurance from the university.

3.11.1 Continuation of Financial Support

When the Department admits a student with financial support, it does so with the expectation that this support will be continued as long as the student is making satisfactory progress toward his or her degree. 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.

Students must propose by end of the summer after their third year or their stipend is frozen at the third-year level. There are exceptions for students who weren't fully supported by Department funds for the entire time (e.g. grant, fellowship, self-pay) or in a joint program or required an extra year of preparatory work prior to starting the standard Ph.D. coursework. Also, if the proposal event is scheduled before classes start in the Fall semester but occurs in September, this is sufficient for meeting the deadline. However, if the proposal is scheduled after classes start and/or doesn't occur until October or later, the stipend increase will begin in the following semester.

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 are usually expected to complete all Ph.D. requirements by the end of their fifth year. Support beyond the fifth year will be considered on a case-by-case basis. Also, students who fail to attend to their TA duties or fail to attend to requirements for their mastery of the English language with the Intercultural Communication Center (ICC) may be subject to a reduction in stipend.

Students who do not defend by the end of their fifth year are also reviewed on a case-by-case basis for continued funding. Such reviews generally occur at the progress meetings.

A domestic student can switch to ABS¹ status if he/she is no longer supported by the Department, provided he/she 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

¹ This stands for "All But Dissertation, In Absentia."

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 his or her 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.

3.11.2 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. 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 Carnegie Mellon, while others may desire to stay at Carnegie Mellon and seek employment here. Plans frequently change, but it is important to keep the Department Head informed.

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 Carnegie Mellon University. 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.

3.11.3 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 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.

3.12 Travel Funding

The Department encourages students to attend and participate in statistics 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. There are three prerequisites to getting funding from the department. Before requesting funding, students should (1) request funding from one or more supervising faculty members who have available funding, (2) apply for funding through the GSA lottery, and (3) apply for funding sponsored by the host organization, if any. (These steps can happen in parallel.) One new requirement here is that supervising faculty members with external funding who do not provide support must send the Graduate Director a brief explanation as to why such funding cannot be provided.

When these prerequisites are satisfied, students can request Departmental funding by sending (electronically) to the Graduate Director:

- a short description of the reasons for traveling, including information about the students' professional role in the event (e.g., invited speaker, awardee, participant);
- a brief budget outlining the costs the student will face;
- an indication of support received from a supervising faculty member or the GSA, if any; and
- if applicable, a description of the student's special request (as described below).

The Graduate Director will determine the student's travel funding level, in consultation with the student, any supervising faculty, and the Department Head. The decision will be made in accordance with two criteria:

1. The nature of the trip as it relates to the students' professional development. Among trips that provide some professional opportunity, we distinguish three levels: Vital, Relevant, and Discretionary.

A trip is Vital if it represents a notable (and hard to replicate) opportunity for professional and career advancement. Such trips 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.

A trip is Relevant if it represents a significant opportunity for professional and career advancement that does not quite rise to the level of Vital. Such trips have the student in an active and visible role: giving a presentation or poster at a conference or workshop; active participation in conferences, workshops or research groups that are directly relevant to the student's research; or participation in networking or related events that can bring substantial attention or laurels that can help the student's career options.

All other trips with professional development opportunities are deemed Discretionary.

2. The student's seniority and ABD status.

These criteria are used as follows.

Seniority	Trip Type	Approval	Minimum Funding if approved
First Year	Any	Special request	\$500
Second Year	Vital	Automatic	\$500

Second Year	Relevant, Discretionary	Special request	\$500
Third Year	Relevant., Vital	Automatic	\$500
Fourth Year and over, non ABD	Relevant, Vital	Automatic	\$750
Fourth Year and over, ABD	Any	Automatic	\$750

Here, "special request" means that the student should include in the request an explanation of why this opportunity is valuable to the student. Also, "automatic" means that the request will be approved if the basic requirements have been met (i.e., procedure, travel professionally relevant). The Department will try to maximize the funding for each request, based on the available funding and the number of students who need it, but the minimum levels will be given at least. Note also that funding does not roll over from year to year.

3.13 Communication Between Students and Faculty

3.13.1 Advising

New graduate students will be advised by members of the graduate education committee, led by the Director of Graduate Studies. This process will begin at orientation, when you will have the opportunity to talk with your advisor and lay out a plan for the courses you will take during the first two years of your time in the program. Changes to this plan should be discussed with the Director of Graduate Studies. This will ensure adherence to the rules and successful completion of the various course, exam, and project requirements.

Graduate students need good advice concerning their academic program and should consult regularly with the Director of Graduate Studies or other members of the graduate education committee to discuss their academic progress.

There are two distinct stages in the advising process. When a student initially enrolls in the graduate program, he or she is advised by the graduate education committee. The motivation for having shared advisors for all new students is solely to ensure adherence to the program requirements. Students are allowed (and encouraged) to 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, he or she is 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 his or her 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 he or she should bring their concerns to his or her graduate advisor, the Director of Graduate Studies, the Department Head, or the Student Advisory Committee, as discussed in the next subsection.

3.13.2 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 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.

3.13.3 Evaluation of Students

Twice each year the faculty meets to assess student achievement and provide feedback so that each graduate student is aware of his or her 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 his or her 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 his or her 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.

3.14 Outside Work and Summer Training

3.14.1 Outside Work The term "outside work" refers, quite broadly, 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 that 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.

3.14.2 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 36995 (Reading and Research) under the supervision of one or more faculty. All PhD students receiving summer support that is processed by the Department must be registered for 36 units in the 36-995 Reading & Research course.

Students conducting Summer internships should register for the elective, credit-bearing course 36997 (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.

3.15 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*.

3.15.1 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.

3.15.2 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.

3.15.3 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.

3.15.4 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.

3.15.5 Usual Order and Content

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

3.15.5.1 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

3.15.5.2 Text

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

3.15.5.3 References

Appendices (if needed)

3.15.6 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.

3.15.7 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 LATEX. Footnotes should be numbered consecutively throughout each chapter.

3.15.8 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.

3.15.9 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 his 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).

3.15.10 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*.

4 The MSP Program

The Master of Statistical Practice (MSP) degree is a two-semester professional master's degree program that emphasizes statistical practice, methods, data analysis and practical workplace skills. The MSP is for students who are interested in professional careers in business, industry, government, or scientific research. Students who complete this program will be well trained in the practice of statistics and will be very competitive in the job market. There is not a thesis requirement nor a qualifying exam.

4.1 Program requirements

The program requirements are successful completion of the following classes:

Fall

- 36601 (6 units) Perspectives in Data Science I
- 36611 (6 units) Professional Skills I
- 36650 (9 units) Statistical Computing
- 36617 (12 units) Applied Linear Models
- One additional 9-unit course in statistical methods (600 or 700 level)

Spring

- 36601 (6 units) Perspectives in Data Science II
- 36611 (6 units) Professional Skills II
- 36662 (9 units) Data Mining (or 9 units of statistical methods if already completed)
- 36618 (12 units) Time Series and Experimental Design
- 36726 (12 units) Statistical Practice

Total units: 87

Due to the coordinated nature of the courses, except for special extenuating circumstances, the program is full time for two consecutive semesters. Because of the prescriptive nature of the curriculum, registration is handled by the Executive Director.

Students must follow the procedures and deadlines for adding, dropping, or withdrawing from courses as identified on the academic calendar. Information can be found at <https://www.cmu.edu/hub/registrar/course-changes/index.html>. However, students must first discuss with the Faculty Director, as changes to your registration can imperil your status or progression toward your degree.

There is no thesis. The final client report and presentation for 36726 serves a similar purpose. Additional courses and/or substitution is only permitted with the approval of the faculty director, and generally must be within the Department of Statistics and Data Science.

Course work units with a grade of C- or lower are not acceptable toward graduate degree requirements. Pass/fail grades are not permitted for courses used to satisfy MS course requirements. Program completion is normally in two semesters. The maximum allowable time is 3 years. Once this time-to-degree limit has lapsed, the student may resume work towards a master's degree only if newly admitted to a currently offered master's degree program under criteria determined by that program.

Students with 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 Catherine Getchell, 412-268-6121, getchell@cmu.edu.

4.2 Advising

Advising is the joint responsibility of the Faculty Director (Susan Buchman) and the Executive Director (Christopher Peter Makris). Students should, at a minimum, meet with at least one of

these at the beginning of the program, at end of first term, and near the end of the program to discuss academic and career issues.

4.3 Transfer courses

Due to the coordinated nature of the MSP, we accept no transfer for credit. If a course similar to an MSP course has already been taken at an accredited institution, upon consultation with the program directors, an alternative CMU Statistics and Data Science course will be substituted in the student's schedule.

4.4 Teaching and Outside Work

We require all MSP students to be teaching assistants for both semesters. This gives students the opportunity to strengthen their statistical knowledge and/or get practice explaining statistical ideas. Depending on language testing results from Intercultural Communications Center (ITA testing), student will be assigned a TA role that is some combination of grading, labs, and office hours. Training is provided during orientation. Students may choose to take additional training through the Eberly Center for Teaching Excellence & Educational Innovation Teaching Excellence & Educational Innovation.

Beyond their TA work, MSP students cannot pursue additional employment without permission from the Faculty Director.

4.5 Other Policies

4.6.1 University Policy on Academic Integrity

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

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

4.6.2 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

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

4.6.3 University Financial Aid

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

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

5 Payroll information

5.5.1 Payroll dates

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

5.5.3 I-9 forms

All students who are receiving a paycheck from the University must complete form I-9 prior to employment. Required by the U.S. government, the I-9 verifies identity and employment eligibility. The student must present documents which prove the student's identity and eligibility to work in the U.S. The reverse side of the I-9 form lists the documents that are acceptable proof of identity and eligibility. This is completed in "Workday," the university human resource system.

5.5.4 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.

5.5.5 Social security numbers (foreign 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.

6.1.1 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 (<http://www.cmu.edu/graduate/policies/Summary%20of%20Graduate%20Student%20Appeal%20and%20Grievance%20Procedures.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 student ombudsman, Suzie Laurich-McIntyre, slaurichmcintyre@cmu.edu, on issues of process or other concerns as they navigate conflicts.

6.1.2 University contacts and procedures

Provost Laurie Weingart 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.

6.2 Safeguarding Educational Equity Policy Against Sexual Harassment and Sexual Assault

Sexual harassment and sexual assault are prohibited by CMU, as is retaliation for having brought forward a concern or allegation in good faith. The policy can be viewed in its entirety at: http://www.cmu.edu/policies/documents/SA_SH.htm. If you believe you have been the victim of sexual harassment or sexual assault, you are encouraged to make contact with any of the following resources:

- Office of Title IX Initiatives, <http://www.cmu.edu/title-ix/>, 412-268-7125
- Sexual Harassment Advisors, found in appendix A of the Policy Against Sexual Harassment and Sexual Assault;
- Survivor Support Network, found in appendix B of the Policy Against Sexual Harassment and Sexual Assault;
- Sexual Harassment Process and Title IX Coordinators, found in section II of the Policy Against Sexual Harassment and Sexual Assault;
- University Police, 412-268-2323
- University Health Services, 412-268-2157
- Counseling & Psychological Services, 412-268-2922

6.3 Maternity Accommodation Protocol

http://www.cmu.edu/student-affairs/theword/acad_standards/creative/studentmaternityprotocol.html

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

Students are encouraged to consult with relevant university faculty and staff as soon as possible as they begin making plans regarding time away. Students must contact the Office of the Dean of Student Affairs to register for Maternity Accommodations. Students will complete an information form and meet with a member of the Dean's Office staff to determine resources and

procedures appropriate for the individual student. Planning for the student's discussion with her academic contact(s) (advisor, associate dean, etc.) will be reviewed during this meeting.

6.4 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. (See **Appendix B** for a *Best Practices* example)

6.5 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.

6.6 University Policies & Expectations

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

- The Word/Student Handbook: www.cmu.edu/student-affairs/theword//index.html
- Academic Integrity Website: (<https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html>)
- University Policies Website: www.cmu.edu/policies/
- Graduate Education Website: <http://www.cmu.edu/graduate/policies/index.html>

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

7 Carnegie Mellon University Statement of Assurance

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

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

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

The Statement of Assurance can also be found on-line at:

<https://www.cmu.edu/policies/administrative-and-governance/statement-of-assurance.html>.

8 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/>.

Appendix A
2019-2020
Highlighted University Resources for Graduate Students
and
The WORD, Student Handbook

Key Offices for Graduate Student Support

Graduate Education Office

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. Our goals are to support, advise and guide individual graduate students as they work to complete their degrees and to provide resources which will enhance their professional development experience.

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 all issues related to the graduate student experience

The Graduate Education Office is directed by Suzie Laurich-McIntyre, Ph.D., Assistant Vice

Provost for Graduate Education, who offers personalized consultations with graduate students to support their academic success, connects them with relevant resources, and clarifies university level policies.

The Graduate Education Office also works with the colleges and departments by informing and assisting in forming 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 our graduate students' advancement.

Office of the Dean of Students

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

The Office of the Dean of Students provides central leadership of the metacurricular experience at Carnegie Mellon including the coordination of student support. Vice President of Student Affairs and Dean of Students Gina Casalegno leads the division of student affairs which includes the following offices and departments (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

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.

The Office of Community Standards and Integrity provides consultation, support, resources and follow-up on questions and issues related to Academic Integrity:

<https://www.cmu.edu/student-affairs/ocsi/students/index.html>

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.

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

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

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

Students with disabilities are encouraged to self-identify with the Office of Disability Resources and request needed accommodations. Any questions about the process can be directed to Catherine Getchell, 412-268-6121, getchell@cmu.edu.

Eberly Center for Teaching Excellence & Educational Innovation

www.cmu.edu/teaching

We offer a wide variety of confidential, consultation services and professional development programs to support graduate students as teaching assistants or instructors of record during their time at Carnegie Mellon University and as future faculty members at other institutions.

Regardless of one's current or future teaching context and duties, our goal is to disseminate evidence-based teaching strategies in ways that are accessible and actionable. Programs and services include campus-wide Graduate Student Instructor Orientation events and our Future Faculty Program, both of which are designed to help participants be effective and efficient in their teaching roles. The Eberly Center also assists departments in creating and conducting customized programs to meet the specific needs of their graduate student instructors. Specific information about Eberly Center support for graduate students is found at www.cmu.edu/teaching/graduatestudentsupport/index.html.

Graduate Student Assembly

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

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

GSA offers an expanding suite of social programming on and off-campus to bring graduate students from different departments together and build a sense of community. GSA is the host of the Graduate Student Lounge on the 3rd floor of the Cohon University Center- a great place to study or meet up with friends. GSA also maintains a website of graduate student resources on and off-campus. Through GSA's continued funding for professional development and research conferences, the GSA/Provost Conference Funding Program and GSA/Provost GuSH Research Grants are able to run, as managed by the Graduate Education Office. As we move forward, GSA will continue to rely on your feedback to improve the graduate student experience at CMU. Feel free to contact us at gsa@cmu.edu to get involved, stop by our office in the Cohon University Center Room 304 or become a representative for your department.

Intercultural Communication Center (ICC)

www.cmu.edu/icc/

The Intercultural Communication Center (ICC) is a support service for nonnative English speakers, both newly arrived international students as well as students who attended high school and/or undergraduate programs in the US. The ICC offers seminars, workshops, and 1-1 consultations that develop the language and cross-cultural skills needed to succeed in academic programs at Carnegie Mellon University. The ICC provides International Teaching Assistant (ITA) testing, a required test indicating a nonnative speaking TA has the language proficiency required to work with students in classes, labs or individual meetings. The ICC also

supports International Teaching Assistants in developing fluency and cultural understanding to teach successfully at Carnegie Mellon University.

Office of International Education (OIE)

<http://www.cmu.edu/oie/>

Carnegie Mellon hosts international graduate and undergraduate students who come from more than 90 countries. The Office of International Education (OIE) is the liaison to the University for all non-immigrant students and scholars. OIE provides many services including: advising on personal, immigration, academic, social and acculturation issues; presenting programs of interest such as international career workshops, tax workshops, and cross-cultural and immigration workshops; maintaining a resource library that includes information on cultural adjustment, 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 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, non-educational resources and international military service information 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-vaedbenefts@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>

Key Offices for Academic & Research Support

Academic Coaching/Consulting - The Office of Academic Development

<https://www.cmu.edu/acadev/coaching/index-grad.html>

The Academic Coaching Program is a student assistance program that supports graduate students in the development and/or improvement of skills, strategies, and processes that are necessary for a productive and successful experience at CMU and beyond. Support for graduate students comes in two forms: Individualized Sessions and Group Workshops. Individualized Sessions are the primary focus and can be best understood as working with a personal consultant. Academic Coaches/Consultants meet with students regularly, in a one-on-one capacity, in order to assess a student's needs and implement strategies to satisfy those needs, while providing a variety of support throughout the process. Areas of focus include, but are not limited to:

- Self-Management
 - Developing and/or adjusting your organizational system
 - Managing time and combating stress and procrastination
 - Prioritization and decision making
 - Advancing mindset, self-efficacy, and belongingness
 - Balancing coursework, research, and professional development opportunities
- Study Skills
 - Identifying and modifying your learning process
 - Metacognition
 - Test-taking and note-taking strategies
 - Content comprehension and retention

Computing and Information Resources

www.cmu.edu/computing

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

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

Global Communication Center

<https://www.cmu.edu/gcc>

The Global Communication Center offers free one-on-one tutoring and workshops for native and non-native English speakers from any academic discipline. Our tutors are trained to provide research-backed communication strategies on written, oral, and visual communication projects, in the sciences and the humanities. We can help you improve the effectiveness of your communication in any academic project, including the following:

- Technical reports
- Dissertations
- Research posters
- Oral presentations
- Journal articles
- Grant proposals
- Class essays

You can visit us at any stage in the project—whether you are just getting started and need to talk through ideas or are putting the finishing touches on a final draft.

We also offer workshops on topics including crafting professional emails, team communication, PowerPoint slide design, data visualization, and job application materials. For more information, to view our resources, or to schedule an appointment, visit our website.

Research at CMU

www.cmu.edu/research/index.shtml

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

Office of Research Integrity & Compliance

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

The Office of Research Integrity & Compliance (ORIC) is designed to support research at Carnegie Mellon University. The staff work with researchers to ensure research is conducted with integrity and in accordance with federal and Pennsylvania regulation. ORIC assists

researchers with human subject research, conflicts of interest, responsible conduct of research, export controls, and institutional animal care & use. ORIC also consults on, advises about and handles allegations of research misconduct.

Key Offices for Health, Wellness & Safety

Counseling & Psychological Services

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

Counseling & Psychological Services (CaPS) affords the opportunity for students to talk privately about issues that are significant for them in a safe, confidential setting. Students sometimes feel uncertain about why they are feeling upset and perhaps confused about how to deal with those feelings. An initial consultation with a CaPS therapist will clarify options and provide a recommendation to the appropriate mental health resource at Carnegie Mellon or the larger Pittsburgh community. CaPS also provides workshops and group sessions specifically for graduate students on campus. CaPS services are provided at no cost. Appointments can be made in person or by telephone, 412-268-2922.

Health Services

www.cmu.edu/HealthServices/

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

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

Campus Wellness

<https://www.cmu.edu/wellness/>

At the university, 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 bit.ly/BeWellatCMU or by contacting the Program Director for Student Affairs Wellness Initiatives, at alusk@andrew.cmu.edu.

Religious and Spiritual Life Initiatives (RSLI)

www.cmu.edu/student-affairs/spirituality

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

University Police

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

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

The University Police Department is located at 300 South Craig Street (entrance is on Filmore Street). The department's services include police patrols and call response, criminal investigations, fixed officer and foot officer patrols, event security, and crime prevention and education programming as well as bicycle registration. Visit the department's website for additional information about the staff, emergency phone locations, crime prevention, lost and found, finger print services, and annual statistic reports.

Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault, and fire safety policies and containing statistics about the number and type of crimes committed on the campus and the number and cause of fires in campus residence facilities during the preceding three years. Graduate students can obtain a copy by contacting the University Police Department at 412-268-6232. The annual security and fire safety report is also available online at <https://www.cmu.edu/police/annualreports/>.

Shuttle and Escort Services

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

The WORD

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

The WORD is Carnegie Mellon University's student on-line 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