

Ph.D.

Student Handbook

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I. PROGRAM OVERVIEW

This handbook provides a guide to the Ph.D. program at the H. John Heinz III College. This guide is intended to provide a workable means for faculty and students to accomplish the purposes of the program. As additional questions arise, they should be addressed to the Chair of the student's Advisory Committee, a member of the Ph.D. Committee, or the Ph.D. Program Director. The requirements and procedures given are for a student enrolled only in the Heinz Ph.D. program. The Heinz Ph.D. program can lead either to the title Ph.D. in Public Policy and Management (PPM) or Ph.D. in Information Systems and Management (ISM), depending on the focus of a student's research. The only difference in the requirements is that students in the ISM program must fulfill technology course requirements, and fulfill the advanced elective course requirements with courses in Information Systems, as indicated below. Students enrolled in joint Ph.D. programs (Economics and Public Policy, Machine Learning and Public Policy, Statistics and Public Policy) or university-wide programs (Strategy, Entrepreneurship, and Technological Change) have some exceptions to the general Heinz requirements. The sections on these programs provide the necessary details.

A. Purposes of the College's Ph.D. Program

The purpose of the Ph.D. program is to train students to do independent scholarly research on important real world problems in public policy and management and information systems and management. The program is not discipline based, but problem focused. As a consequence, students are encouraged to use the appropriate combination of research approaches for the problem at hand. Students may therefore find it advantageous to work with faculty from different disciplines or from different units at Carnegie Mellon or outside the university.

B. Entrance Expectations

The Heinz College's Ph.D. program seeks highly qualified and enthusiastic students who have set their sights on careers as scientific researchers. Generally, admitted students will have demonstrated an interest in one of the areas in which faculty have an expertise. Further, the College expects students to enter with a working knowledge of calculus (multivariable differential and integral calculus at the level covered in a university freshman calculus class.). Other quantitative skills, such as linear algebra, undergraduate statistics and economics, and facility with computers, while not explicitly required, are used heavily by Heinz students. The expectations in terms of preparation may differ for the joint programs. In addition, research experience is a plus, although not required.

C. Degree Titles

The Heinz College offers two Ph.D. degree titles: Ph.D. in Public Policy and Management, and Ph.D. in Information Systems and Management. The program is essentially the same for both titles. Students simply take courses in their research area of interest to fulfill the advanced elective and concentration requirements, and proceed with research focused on a topic in public policy and management or in information systems and management. Students working toward the Ph.D. in ISM have the additional requirement of 24 units of technology courses, so they have sufficient background to do meaningful work in this area.

D. Program Structure

A Ph.D. student devotes considerable attention to acquiring basic research skills in methodology, reviewing and mastering knowledge in a selected field, and developing research into specific problems. The program chosen reflects the interests of both the student and the faculty, as well as opportunities for research in the field. The requirements for the Ph.D. degree are as follows:

- STUDY. Completing a program of study according to an approved educational plan.
- RESEARCH PAPERS. Completing two research papers and satisfactorily presenting them to the Faculty.
- CANDIDACY. Satisfying all three Candidacy Requirements of Research Competence, Flexibility, and Structuring.
- THESIS. Completing a dissertation that is satisfactorily proposed and defended to the Faculty.

The basic Ph.D. program of study is flexible and aimed at developing research skills. Within certain course constraints, it follows an educational plan that is developed by a student and his or her Advisory Committee. Pre-candidacy students must satisfactorily complete (satisfactory completion requires a grade of B or better) a minimum of 72 credits of Ph.D. level courses per year for the first two years (e.g., 3 courses per semester), although a normal load is 96 credits (4 courses per semester). The program of study requires certain clusters of courses and activities. A typical program is:

	Semester 1	Semester 2
Year 1	Quantitative Methods Course Ph.D. Seminar I Social and Policy Course Elective	Quantitative Methods Course Ph.D. Seminar II Social and Policy Course Elective
Year 2	Quantitative Methods Course Advanced Elective Concentration Specific Course Ph.D. Seminar III	Quantitative Methods Course Advanced Elective Concentration Specific Course Elective
Year 3	Concentration Specific Course Concentration Specific Course Elective	Concentration Specific Course Concentration Specific Course Elective

The basic study requirements are detailed in Section II below. Information about the Educational Plan is given in Section IIIC. Information on the requirements and procedures for Candidacy are given in Section IID.

II. PROGRAM REQUIREMENTS

A. Required Common Courses

1. Ph.D. Seminar

The Ph.D. Seminar I, II and III (90-901, 90-902, 90-918) is a three-semester course sequence begun in the first semester of Ph.D. study. It carries 12 units credit each semester. Its primary function is socialization to the research process, with an emphasis on problem identification and formulation. During the first semester students are exposed to a wide variety of research paradigms and Heinz faculty research and begin their development of the First Research paper topic; the second semester focuses on guided development of the First Research paper topic, and the third semester involves formal presentation of the First Research paper project to the students and instructor in PhD Seminar I.

Ph.D. Seminar Structure

In developing a base for the First Research Paper, the Ph.D. Seminar activities are structured as follows:

Semester 1

This semester provides an introduction to the College's research environment. This occurs by students actively learning of faculty research and by students beginning their own research.

In beginning his or her own research, each first-year student works with a Carnegie Mellon faculty member in identifying and understanding a published research paper by the faculty member that is suitable for Ph.D. Seminar presentation. The student gives a formal presentation of the paper, emphasizing its background in the literature and its principal contributions, sparing technical details. The student is expected to identify where subsequent research might pick up, and so should pick a paper that presents opportunities for that student to take the next step by developing a follow-on research project.

Semester 2

Development of a research paper is a cumulative process that benefits from intermediate deadlines and critical feedback. The process that began in Semester 1 and continues through Semester 2, the summer, and into Semester 3 provides just such a mechanism to insure cumulative progress.

During the spring semester, the student develops a proposal for the First Research Paper in collaboration with a faculty member. This proposal will be presented to the participants in the Ph.D.

Seminar and the student's Advisory Committee should attend. At the end of the semester, a revised proposal and outline of the First Research Paper will be submitted and presented to the seminar participants. This revised proposal should outline all the tasks that must be completed to finish the First Research Paper.

Semester 3

Early in the fall semester of the second year, the student presents a draft of the First Research Paper to the participants in the Ph.D. Seminar. The student's Advisory Committee should plan to attend the presentation.

Following the Ph.D. Seminar presentation, and based on consultation with the faculty present, the student's Advisory Committee works with the student in determining when the student should be ready to formally present the First Research Paper to the faculty as a whole. Details of the mechanism for this are discussed in a later section on research papers. Students should have advanced sufficiently so that the First Research Paper can be formally presented during semester 4.

Grading for Semesters 1 and 2

The Ph.D. Seminar is an open environment in which students are encouraged to try out research ideas and to benefit from feedback. Students are evaluated both on their presentations and their participation. Grading for semesters 1 and 2 is on a letter-grade or Satisfactory/Unsatisfactory basis, at the discretion of the instructor (all students are graded on the same basis).

Grading for Semester 3

The third semester of the Ph.D. Seminar is graded on a Satisfactory/Unsatisfactory basis. Failure to present a competent paper in the Ph.D. Seminar results in a grade of Unsatisfactory. Successful presentation of the First Research Paper in the Ph.D. Seminar will result in a grade of Satisfactory.

If a student should successfully present their First Research Paper before Semester 3, they are exempt from the third semester of the Ph.D. Seminar. This is not expected, but may occur if a student makes extremely rapid progress on their First Paper.

2. Quantitative Methods Cluster Requirements

Another basic requirement of the Ph.D. program is the building of quantitative skills through successful completion of coursework. The Quantitative Methods Cluster Requirement consists of four semesters of work and should be satisfied by the end of the second year. This requirement is commonly met by coursework in statistics, econometrics, or numerical methods. The exact quantitative methods courses that are appropriate depend on the student's area of interest and the methods needed for analysis. Listed below are courses that are pre-approved as meeting this requirement.

Courses that meet this requirement include:

Heinz

90-905 Statistical Theory for Social and Policy Sciences

90-906 Introduction to Econometric Theory

90-907 Econometric Theory and Methods

90-915 Fundamentals of Social Network Methods

90-916 Intermediate Social Network Methods

90-930 Advanced Social Network Methods

SDS

88-640 Empirical Research for Social Science and Policy

88-753 Causal Modeling

Tepper

47-811 Econometrics I

47-812 Econometrics II

47-805 Computational Methods for Economics

47-746 Advanced Data Analysis

47-744 Analytical and Structural Marketing Models

47-834 Linear Programming

47-830 Integer Programming

47-846 Analysis and Heuristics

47-894 Research Methods in Behavioral Sciences: Experimental Research Methods

47-901 Advanced Economic Analysis I (Structural Models)

47-902 Advanced Economic Analysis II (Advance Econometrics)

Mathematics

21-228 Discrete Mathematics

Statistics

36-325 Probability and Mathematical Statistics I

36-326 Probability and Mathematical Statistics II

36-707 Regression Analysis

36-708 Linear Models and Experimental Design

36-720 Discrete Multivariate Analysis

36-722 Continuous Multivariate Analysis

36-728 Time Series Analysis I

36-730 Time Series Analysis II

Machine Learning

10-701 Machine Learning

10-702 Statistical Machine Learning

10-705 Intermediate Statistics

University of Pittsburgh, Department of Industrial Engineering

IE-2078 Math Modeling Techniques

IE-2084 Stochastic Processes

IE-2086 Decision Models

University of Pittsburgh, Department of Economics

ECON 2020 Introduction to Econometrics

ECON 2150 General Econometrics

ECON 2260 Advanced Econometrics 1

ECON 2270 Advanced Econometrics 2

ECON 2600 Computational Methods Economics

ECON 3150 Special Topics in Econometrics

Furthermore, any course that is a graduate level course in the Department of Statistics or any Operations Research course at the Ph.D. level will meet this requirement. Other courses at Carnegie Mellon or the University of Pittsburgh may also be appropriate, however, students who wish to use courses that are not pre-approved should petition the Ph.D. committee. The petition should explain why the course(s) are appropriate, how they fit with the student’s research program, and should be signed by the student’s faculty advisor. A copy of the syllabus should be attached to the petition, if possible. The petition should be submitted to the Ph.D. Program Director.

3. Social and Policy Sciences Requirements

The Social and Policy Sciences Requirements consist of two semesters of work in specified doctoral courses. One semester develops an appreciation and understanding of research paradigms from an economics perspective. The other semester develops an appreciation and understanding of research paradigms from another social science perspective: for example, organizations, social psychology, or political science. Requiring students to master research paradigms in two perspectives insures that they will have the breadth to do effective social science research. It also provides a two-pronged base for more advanced courses.

These requirements may be fulfilled by any Ph.D. level course approved by the Chair of the student's Advisory Committee and the Ph.D. Program Director. The following courses have been pre-approved and can be taken in fulfillment of the requirement without petition:

Microeconomics:		
Heinz	90-908	Microeconomics
Tepper	47-800, 801 (both)	Microeconomics I and II (both)
Pitt	Econ 2100	Advanced Microeconomic Theory I
Other Social Science:		
Tepper	47-890, 892 (both)	Seminar in Organizational Behavior
	890 Micro; 892 Macro	
Social and Decision Sciences	88-703	Seminar in Human Judgment and Decision Making
Pitt	PS 2040	Core Political Theory
Heinz	90-912	Demography
	90-917	Organizations Theory

4. Advanced Electives

Two advanced electives are required. These are advanced Ph.D. level courses that go beyond basic methods or theory in the student’s area of interest. They should amount to 2 semesters (or the equivalent, e.g., 4 minis, or 1 semester course plus 2 minis). These should be completed by the end of the student's

third year; at least one should be completed by the end of the student's second year. The selection of these courses should be done in consultation with the student's faculty advisor.

For students who are working towards the ISM degree title this requirement will be fulfilled with 24 units of IS advanced Ph.D. elective courses taught at Heinz. The student can petition the Ph.D. committee to substitute advanced Ph.D. elective courses in IS taught in other CMU or Pitt departments.

5. Technology Courses

Students who wish to receive the ISM degree title must demonstrate knowledge of information technology sufficient to support their research in this area. Students are required to have taken 24 units of technology classes. Students can petition to receive credit for prior coursework in this area or to substitute other courses. The courses below are considered pre-approved to meet this requirement.

Heinz

95-705 Telecommunications Management

95-704 Advanced Database Management

95-706 Object oriented Analysis and Design

95-807 Object Oriented Programming

95-753 Internet Security

95-843 Service Oriented Architecture

95-791 Data Mining

B. Areas of Concentration

Ph.D. students are required to declare an area of concentration or to be enrolled in a joint degree program. Students have broad flexibility in defining their concentration. The purpose of a concentration is not to place artificial or inflexible constraints on research and course plans but rather to provide direction by

- giving students a clearer sense of their research and longer term professional objectives
- providing guidance for additional interaction with faculty, especially through advanced coursework relevant to the concentration.

A guiding philosophy in the development of a concentration is that it be focused on a particular application area, or be interdisciplinary in character. Some examples are technology policy, health economics, information systems, behavioral decision making. Concentrations are not comparable with disciplinary areas, such as economics or political science (the exception is for students in joint programs – by implication their concentration is in the area of the partner program, e.g., statistics). A student may,

nonetheless, tailor a course of study and research to secure the essential grounding typical of graduates in such disciplinary fields.

In consultation with their Advisory Committee, first-year students must declare their concentration in their initial educational plan (due at the end of the second semester). Competence in the concentration area is achieved by a combination of research and course work. Students, however, are not restricted to choose only from these sample concentrations, or if they choose from among the sample concentrations to take the courses listed for that concentration. Further, as the student progresses through the program, concentrations and/or course plans may be redefined. Students in a joint degree program do not have to declare a concentration.

While definition of concentrations and plans for achieving competence in the concentration are flexible, it is important that two extremes be avoided. On one hand, the concentration and the associated course plan should not be wholly disciplinary in character or excessively narrow. On the other hand, the concentration and course plan should not be so broad that it ceases to be a concentration and rather is only a loosely linked potpourri of courses. The coursework for the Advanced Electives requirement may also be used for the concentration coursework requirement, as appropriate. The coursework for the quantitative methods and social and policy requirements may not be used for the concentration requirement. Examples of some possible concentrations are described below.

4. Joint Programs

Carnegie Mellon University has Ph.D. training programs that are offered jointly by the Heinz College and other schools on campus. Five such programs are described here.

Joint Program in Economics and Public Policy. The Heinz College and Carnegie Mellon's Tepper School of Business jointly offer the *Doctor of Philosophy in Economics and Public Policy*. Students in this program will obtain in-depth training in economics, quantitative methods and substantive policy areas. Students take core courses (and subsequent qualifying exams) in economics at the Tepper School, and core courses in public policy at Heinz. Students work with faculty advisers from both Heinz and Tepper. For more details, see:

<http://www.tepper.cmu.edu/doctoral-program/fields-of-study/economics--public-policy/index.aspx>

Joint Program in Statistics and Public Policy. The Heinz College and Carnegie Mellon's Department of Statistics jointly offer the *Doctor of Philosophy in Statistics and Public Policy*. The program provides students with comprehensive preparation in both statistics and public policy. Students take core courses and qualifying exams in the Statistics department, and core public policy coursework at Heinz. Students in the joint program have faculty advisers from both Heinz and Statistics. For more details see:

<http://www.stat.cmu.edu/programs/graduate/joint-phd-program-in-statistics-and-public-policy>

Joint Program in Machine and Public Policy. The Heinz College and Carnegie Mellon's Department of Machine Learning jointly offer the *Doctor of Philosophy in Machine Learning and Public Policy*. The

program provides students with comprehensive preparation in both machine learning and public policy. Students take core courses and qualifying exams in the machine learning department, and core public policy coursework at Heinz. Students in the joint program have faculty advisers from both Heinz and Machine Learning. For more details see:

<http://www.ml.cmu.edu/prospective-students/joint-phd-mlheinz.html>

Ph.D. in Strategy, Entrepreneurship, and Technological Change (SETChange). The Heinz College participates in the Ph.D. program in SETChange, along with the departments of Social and Decision Sciences, Engineering and Public Policy, and the Tepper School of Business. The SETChange degree is offered as a university-wide program where students meet the requirements of their home departments or colleges as well as those of the SETChange program. For more details see:

<http://www.cmu.edu/SETChange/education-programs/setchange-phd/index.html>

Ph.D. in Technological Change and Entrepreneurship (TCE). The Heinz College also participates in the TCE Ph.D. program. This is a program jointly offered by Carnegie Mellon University with the Technical University of Lisbon and the Catholic University of Portugal. Students earn a degree both from Carnegie Mellon and from one of the Portuguese universities. Students spend their first year in Lisbon, years two and three in Pittsburgh, then return to Lisbon to complete the degree. Students have advisors both from Carnegie Mellon and from Portugal. For more details see:

http://www.cmu.edu/portugal/tce/phd_TCE.html

C. Research Paper Presentation

The following requirements hold for both the First Research Paper and the Second Research Paper.

1. Scheduling

The first research paper is due at the end of the student's second year in the program. The second research paper is due at the end of the student's third year in the program. The Ph.D. Program Coordinator will assign dates for student paper presentations. Presentations will typically be scheduled the last weeks of the spring semester. If in the judgment of a student and their committee, the student's research is ready earlier, the student may schedule their paper presentation for earlier than their assigned date. Students should notify committee members of the assigned date for their presentation as soon as they receive notification. Students may trade assigned presentation dates among themselves by mutual agreement. The Ph.D. program coordinator should be notified immediately when this occurs.

Failure to present a paper by the assigned date will result in probation for the student, as judged by the PhD committee. If a student is unable to present their research paper as scheduled they must petition the Ph.D. committee for an extension of their deadline by completing the Petition form found on the Heinz College website. The student must state the reasons for the requested extension and supply any relevant supporting material. The Ph.D. committee will review the petition during their end of the year review

meeting and may ask for the student to appear in person before the committee as well as their faculty advisor to answer any questions they may have. The committee will decide if the extension is warranted. If so, the committee will assign the student a new deadline for the paper presentation, and any other conditions that are deemed appropriate. If the committee decides the extension is not justified they will decide on the appropriate course of action, which may include dismissal from the program.

The cover page of the research paper should include the name of the university, the name of the school(s), the student's full name, the names of your committee members, title of the paper, and the date of the presentation. The paper should include an abstract approximately one page in length.

2. Procedure

a. Advisory Committee Certification

The student's Advisory Committee must certify in advance that the paper is ready for presentation. Such certification implies that in the judgment of the Advisory Committee the student can successfully defend the work. This certification should be made to the Ph.D. Program director. An e-mail from the chair of the student's advisory committee to the Ph.D. Program Director is sufficient.

b. Paper Availability

An electronic version of the paper should be sent to the Ph.D. program coordinator no later than one week prior to the presentation date. The paper will be made available to Heinz faculty and Ph.D. students. No presentation will be allowed without a completed copy of the paper.

c. Presentation Chair

A faculty member will serve as the Chair for each Research Paper Presentation. The Chair is responsible for checking that there is a faculty quorum present for the presentation, moderating the presentation and question and answer period, and moderating faculty discussion and evaluation following the presentation and question and answers. The Chair also is responsible for writing memoranda to the student and to the Ph.D. committee summarizing the faculty discussion and evaluation of the paper. The student should request a faculty member to serve as Chair. In the event of difficulty, the Ph.D. Committee will appoint a Chair. In no circumstances will the Chair be a member of the student's Advisory Committee.

d. Quorum

A quorum for a Research Paper consists of at least six tenured or tenure track faculty members, at least two of whom are not on the student's Advisory Committee. It is the student's responsibility to ensure that a quorum is present. This will normally involve contacting various faculty members concerning their schedules before a review is scheduled. It is acceptable for faculty members who cannot be present to participate via teleconferencing, although no more than two of the minimum six faculty members required for a quorum may participate in this way. Under special circumstances faculty other than tenured or tenure track can be allowed. To waive this requirement, submit a petition to the director, explaining why

this faculty member should be part of your quorum. See the program coordinator for an updated list of eligible faculty.

e. Presentation, Discussion, and Evaluation

i. Presentation

The formal presentation of the Research Paper is limited to 30 minutes, with only clarifying questions permitted during the presentation. The Chair of the session will moderate the presentation and judge whether a question is clarifying. The formal presentation is followed by up to 45 minutes of questions, comments, and suggestions by attending faculty and students. At the close of the open presentation, the attending faculty, including those participating remotely, are asked to remain for a discussion and evaluation of the presentation.

ii. Discussion

Following each Paper's presentation, the faculty members assembled will discuss the strengths and weaknesses of the research paper. Faculty members will then make a determination whether the presentation is a Pass, Conditional Pass, or Failure. If the paper is judged to be a conditional pass the faculty will indicate the conditions that must be met for the paper to pass. If the paper is judged a failure the faculty will indicate what they think would have to be done for the paper to pass, or if they think there is nothing that can be done that would justify passing the paper. Finally, the assembled faculty will make a recommendation to the Ph.D. committee regarding the evidence the paper presents toward satisfaction of the three candidacy requirements of research competence, flexibility, and structuring (see next section below). The faculty will also comment on the student's progress on their evaluation of the student's future in the program. It is emphasized that this review is as much an assessment of the student's demonstrated research capability as it is a review of the research contribution of the paper itself.

iii. Communication

The Chair for the Paper Presentation will communicate the determinations of the faculty present at the paper presentation to the student and to the Ph.D. committee in writing, no more than 2 weeks after the presentation. The Chair circulates the draft memos to the attending faculty for their input, revises them if necessary, and sends one memo to the student and one to and the Ph.D. Committee, with copies to the attending faculty.

iv. Evaluation

A Pass is a positive assessment that requires no further revision, preparation, or presentation on the part of the student. A final version of each Passed Paper should be deposited with the Ph.D. Program Coordinator no more than two weeks after its presentation. This final version will be placed in the student's file. Students are strongly encouraged to promptly submit their passed Research Papers for publication in refereed journals and to present their work at meetings of professional societies. Experience has shown that doing so can have a substantial impact on a student's prospects in the job market. The Heinz College is prepared to assist a student financially in presenting their work at professional meetings (see Section IV).

A Conditional Pass is an assessment that the assembled faculty has specific reservations about the quality of the Research Paper or a student's understanding of the research results, methodology, or background material. In this case, the assembled faculty will delineate their concerns and develop a process for moving a Conditional Pass to a Pass. This process should include both a time schedule and a specification of who is responsible for determining that the conditions have been met. The conditions may require a repeat presentation of the paper to the Faculty as a whole, or assessment by the student's advisory committee, or another method determined by the assembled faculty. The Chair for the Paper Presentation will communicate the conditions in writing to the student and to the Ph.D. Committee.

A Failure is an assessment by the assembled faculty that the quality of the Research Paper or a student's understanding of the research results, methodology, or background are sufficiently deficient that meeting specific conditions would not be adequate to remedy the situation. In the case of a Failure a student is automatically on probation. The assembled faculty should make recommendations about what is required to achieve a passing paper, or if in their opinion the student should be retained in the program. Recommendations may include substantial revisions to the paper or abandoning the current paper and finding a new topic. In the case of a new topic a presentation is required. In the case of substantial revisions, the assembled faculty should recommend how the revised paper should be assessed. This may require another presentation, or some other method of assessment. The Chair for the Paper Presentation will communicate the general concerns of the assembled faculty to the student and to the Ph.D. Committee, in writing. In the event of a failure, the Ph.D. committee will review the status of the student. They will decide whether the student should remain in the program, and if so, what conditions must be met for the student to return to good standing.

The Research Paper requirement will be considered fully satisfied when a written version of the paper that satisfies all faculty requirements has been filed with the Ph.D. Program Coordinator.

D. Ph.D. Candidacy

Admission to candidacy signifies that the student has fulfilled all requirements of the Ph.D. program preliminary to the writing of a dissertation.

Candidacy Requirements

In addition to the previously presented coursework stipulations, candidacy requirements include the passing of the First and Second Research Paper Presentations, and satisfying the following three general candidacy requirements:

1. *Research Competence* in methods and substance, as evidenced (at least in part) by original research accomplishment.
2. *Flexibility*, as demonstrated by the ability to learn and apply two distinct methodologies or work in two separate substantive areas.

3. Skill in identifying and *structuring* for analysis a real world problem, yet to be so structured and analyzed in the literature, as shown by the character of research accomplishment.

The three candidacy requirements are normally met through an assessment of the First and Second Research Paper presentations, complemented by course work, although any of these must be met at the Dissertation Proposal if they have not been satisfied by the student's performance on the first and second papers. A student must achieve candidacy no later than at the Dissertation Proposal.

Some specific guidelines on the three criteria may be useful.

Research Competence: Research competence in both substance and methodology is essential for a Ph.D. Generally, no single Research Paper can demonstrate methodological and substantive competence sufficient for candidacy. Instead, each Research Paper is expected to be methodologically and substantively competent with respect to the topic addressed.

Flexibility: Given the array of tools Heinz College Ph.D. students are expected to employ in their research, flexibility is an attribute of considerable importance. Flexibility can be demonstrated by two research papers that are distinctly different in:

- Empirical methodologies (for example, combinations of different types of econometric or statistical analysis, or statistical analysis and experimental methods, statistics and numerical methods)
- Applied topic areas (for example, different topics in a given domain, such as differing topics in drug policy, or topics in completely different domains, such as drug policy and e-commerce)
- Research methodologies (for example, theoretical and empirical)
- Disciplinary perspectives (for example, information systems and organizational behavior)

Structuring: From its beginning, research at the Heinz College has emphasized dealing with the complexity of real world issues by organizing their key aspects in a form that can be dealt with analytically. This has proved to be a powerful approach, avoiding the one extreme of a journalistic approach which is content to describe the issues--however insightfully--and the other extreme of a theoretical or mathematical approach which is content to deal--however creatively-- with an abstraction alone. Since structuring an unstructured problem has connotations of dealing creatively with complexity, it is clearly not easy for the Faculty to provide a simple checklist for this candidacy requirement. But, essentially, research would be considered to have "identified and structured a previously unstructured problem" if it does one of the following:

1. Isolates and defines a real world problem in a form that demonstrably makes the problem amenable to new modes of empirical or theoretical analysis; or
2. Brings to bear theory or methodology that is new and which provides new insights into a real world problem area.

While there is no deadline for obtaining candidacy, good progress would constitute obtaining candidacy no later than the end of Semester 7. Under normal circumstances this will be at the end of the fall semester in the student's fourth year.

Candidacy Procedure

The formal procedure for admission to candidacy is as follows. The Ph.D. Committee will review a student's status during the annual year-end review of student progress. While normally this will occur during the Ph.D. committee annual review of student progress, a student can request evaluation of candidacy at any point in time, conditional on having passed the first and second research papers and met the coursework requirements. During the annual review the Ph.D. Committee will review the student's progress, including faculty memos on the first and second research papers. The committee will then determine if the student has met the candidacy requirements. The Ph.D. Program Director will notify students in writing when they have been granted candidacy. A student is not considered a Ph.D. candidate until the Ph.D. Committee drafts a letter informing them that they have been granted candidacy. There is also a form that must be submitted to the university. Students can obtain the form from the PhD program coordinator who in turn will forward it to Enrollment Services.

E. Title of Degree

As indicated previously, Heinz grants two degree titles: Ph.D. in Public Policy and Management and Ph.D. in Information Systems and Management. Students in joint degree programs will receive the titles of those programs (e.g., Ph.D. in Economics and Public Policy, Ph.D. in Statistics and Public Policy). Areas of concentration will not appear in degree titles.

Under special circumstances, the candidate can petition the Faculty through the Ph.D. Committee for a different degree title. Students who wish a degree title that incorporates the name of a discipline must show that they have developed a level of competence commensurate with that attained by students in those departments. This petition should be accompanied by a written endorsement of the student's faculty advisory committee. Students will not be granted a degree title that is the same as the title of a degree granted by another academic unit at Carnegie Mellon. Requests for exceptions must be prior to the thesis proposal. If the Ph.D. committee approves the student's request the petition is then forwarded to the university, which makes the final decision on the requested title.

F. Doctoral Dissertations

The general requirements for the degree of Doctor of Philosophy at Carnegie Mellon University include the preparation of a dissertation that provides evidence of a significant independent research accomplishment, represents a clear contribution to knowledge, and includes material worthy of publication. This evidence will normally be provided by the completion of a doctoral dissertation specifically prepared for that purpose. However, the evidence may also consist, in part or in whole, of one of more related papers, published or unpublished, or the evidence may consist of papers written jointly with other authors, that constitute the substantial equivalent in the judgment of the faculty of a specifically prepared

dissertation. The dissertation, and the oral examination supporting it, should demonstrate the candidate's knowledge and understanding of his or her field of study, as well as originality and independence in selecting and approaching a problem in the field along with skill in communicating ideas.

1. Dissertation Committees

A student must then identify a group of three (or more) faculty members who can provide guidance in the development of the thesis. This group acts as the student's dissertation advisory committee. Typically, the faculty member providing the primary intellectual leadership will serve as Chair. For the Heinz only students, the Chair or the co-Chair must be a member of the Heinz faculty. In exceptional cases, students can petition to have the Chair of their committee to be someone from outside the Heinz Faculty. In those cases, someone from the Heinz faculty must be deeply familiar with the student's work. Other members should be chosen to maximize input on the substantive and methodological issues of the thesis. For the joint students, at least one faculty member on the Advisory Committee must have an appointment in the Heinz College, and at least two must have appointments at Carnegie Mellon. The student should give the names of this advisory committee to the Ph.D. Program Coordinator. The Ph.D. Committee may suggest some changes in the proposed advisory committee. As the student's thesis research evolves or faculty staffing changes, it may be appropriate to add members to the advisory committee or to drop members from the advisory committee. Any changes should be made promptly and at the student's initiative. With any changes, the relevant faculty members and the Ph.D. committee should be informed.

2. Thesis Proposal

When the development of the thesis topic has reached an appropriately stage, the student should present a thesis proposal seminar open to the University community to which all Heinz College students and faculty are invited. The purposes of this thesis proposal seminar are to provide; (1) a goal for the student that is intermediate to completion and the thesis defense, (2) an opportunity for the faculty at large to provide input on the thesis direction, (3) a further opportunity for other Ph.D. students to see research in progress, and (4) quality control by faculty.

For the student making good progress, the thesis proposal will be presented prior to the end of the student's eighth semester in residence. The thesis proposal should be presented when the student has: (1) developed a mastery of the thesis-relevant literature, (2) attained the methodological skills needed to do the research, (3) framed clearly the expected contributions of the thesis, and (4) identified specifically the research required to complete the thesis. The written proposal should be a convincing statement that items (1)-(4) have indeed been satisfied. It should give a clear sense of what the completed thesis will comprise, how it is to be structured, and enough specifics to allow faculty to predict the style and quality of the analysis.

The thesis proposal should not be delayed past the point when faculty input can meaningfully redirect the thesis. There must be a minimum of three months between the thesis proposal and the thesis defense. Different rules might apply to those students who are in a joint program.

The thesis proposal seminar should be scheduled through the Ph.D. Program Coordinator at least two weeks in advance of the seminar date, so that notices can be sent and copies of the proposal can be made available. No seminar will be scheduled without a completed copy of the proposal. The student is responsible for checking that the Advisory Committee can be present and that a quorum of faculty members will be in attendance.

A quorum for a thesis proposal seminar consists of at least $2n+1$ tenured or tenure track faculty members, where n is the size of the student's Advisory Committee. One attending faculty member who is not on the student's Advisory Committee is the Chair for the seminar. The student is responsible for finding a faculty member to serve as Chair. The Chair conducts the seminar, insuring that time limits are kept and that questioning is orderly. Under special circumstances faculty other than tenured or tenure track can be allowed. To waive this requirement, submit a petition to the director, prior to the proposal or defense, explaining why this faculty member should be part of your quorum. See the program coordinator for an updated list of eligible faculty.

It is acceptable for faculty members who cannot be present to participate via teleconferencing, (telephone, Skype) although no more than two of the minimum faculty members required for a quorum may participate in this way.

The formal presentation of the thesis proposal is limited to 45 minutes, with only clarifying questions permitted during the presentation. The Chair of the session is the judge of whether a question is clarifying. The formal presentation is followed by up to 45 minutes of questions, comments, and suggestions by attending faculty and students. At the close of the open presentation, the attending faculty (including those participating remotely) are asked to remain for a discussion and evaluation of the presentation.

On the basis of the thesis proposal seminar, the faculty in attendance, determine first if it is an acceptable proposal. If the faculty at the seminar are not satisfied with the candidate's research proposal, the candidate may be asked to undertake additional work in the light of faculty comments and schedule a new thesis proposal seminar at a later date. If the faculty feel that the proposal is unacceptable and cannot be revised to pass at a later date, then they may fail the proposal. If a proposal fails the faculty in attendance will make recommendations about whether the student should continue in the program. If a student's dissertation proposal fails, then the Ph.D. committee will evaluate whether the student should continue in the program.

Based on the faculty discussion, the Chair for the seminar drafts a memo summarizing the results of the seminar and their recommendations to the candidate and to the Ph.D. committee. The memo may also contain suggestions regarding the membership of the Dissertation Committee. The Chair circulates the draft memo to the attending faculty for their input, revises it if necessary, and sends it to the student with copies to the attending faculty and the Ph.D. Committee.

The attending faculty may also decide upon a conditional acceptance of the thesis proposal. The Dissertation Committee is responsible for determining that all of the conditions of the acceptance are met before a dissertation defense occurs.

3. Thesis Defense

When the dissertation has been completed to the satisfaction of the Dissertation Committee, the thesis defense may be scheduled. A copy of the completed dissertation must be given to the Ph.D. Program Coordinator at least one week before the thesis defense. The oral defense serves two functions. First, it gives the faculty the opportunity to assess whether the research program specified in the student's thesis proposal has been carried out satisfactorily. Second, it provides a forum for the communication of research results to Heinz students and faculty and to the University as a whole. The defense is open to all faculty and students.

Under special circumstances faculty other than tenured or tenure track can be allowed. To waive this requirement, submit a petition to the director, explaining why this faculty member should be part of your quorum. See the program coordinator for an updated list of eligible faculty.

The formal presentation of the thesis defense is limited to 45 minutes, with only clarifying questions permitted during the presentation. The Chair of the session is the judge of whether a question is clarifying. The formal presentation is followed by up to 45 minutes of challenging questions, comments, and suggestions by attending faculty and students. At the close of the open presentation, the attending faculty are asked to remain (including those participating remotely) for a discussion and evaluation of the presentation.

Clearly, not all results of a thesis can be presented in 45 minutes. The student must focus on the key contributions of the dissertation.

The mechanics of the thesis defense--its location, quorum, and timing--are identical to that of the thesis proposal.

Immediately following the presentation of the defense, the attending faculty remain to vote to accept the thesis or, alternatively, to request substantive or editorial modifications. Requested substantive modifications must remain within the scope of the student's proposed research program previously approved by the faculty as detailed in the post-proposal memorandum. The faculty may delegate authority for overseeing and approving requested modifications to the Dissertation Committee or to an ad hoc committee charged with this function.

4. Submitting the Dissertation

Each candidate is expected to have a substantially complete version of the dissertation in the hands of the Dissertation Committee no later than 6 weeks before the Commencement at which the degree is to be awarded. A minimum of 4 weeks must then be allowed for committee review of the dissertation and for any further revisions that may be required. The candidate should be aware that the Committee may well require revisions so extensive that this minimum does not allow sufficient time for the student to make them. Following a successful thesis defense and approval by the full Dissertation Committee, but not later than ten calendar days before the start of regularly scheduled final exams at Carnegie Mellon University, the candidate must place on deposit with the Ph.D. Program Coordinator a final copy of the dissertation. (NOTE: A diploma will **not** be issued to any candidate who fails to provide the Ph.D. Program Coordinator with a final copy of their dissertation prior to graduation.) Students who have not completed all of these

requirements are not allowed to participate in the university's doctoral hooding ceremony. They may participate in the Heinz College commencement with the approval of their advisory committee and the PhD committee, but they may not wear a doctoral hood.

Along with the final version of the dissertation an original signature/sign off page must be submitted. The signature page should include: the name of the university, the name of the college and the school, the student's complete name, degree title, title of the dissertation, date defended and signatures of each of the committee members and the signature of the dean (deans if in a joint program).

Candidates may submit dissertations at other times during the year, in which case the same general time requirements will prevail. A minimum of one month must be allowed for review purposes between submission of the dissertation to the Committee and its official deposit; and a minimum of ten working days must pass following deposit of the dissertation before the final examination may be held.

Detailed information about the proper format for dissertations can be found at www.il.proquest.com.

III. PROGRAM ADMINISTRATION

A. The Ph.D. Committee

The Ph.D. Committee oversees the Ph.D. Program. It makes recommendations to the Dean and the Heinz Faculty about the program and about students. The Ph.D. Committee consists of members of the faculty appointed by the Dean and two Ph.D. students elected by their fellow students. The student members are selected in an election held in at the beginning of the Fall semester each year. One member of the faculty is appointed by the Dean to serve as the Ph.D. Program Director who chairs the Ph.D. Committee.

The Ph.D. Committee meets periodically, as necessary. Separate from the periodic meetings in a annual review of students conducted after the end of the spring semester.

Many Ph.D. Committee meetings are divided into two parts. In one part, curricular and other general items are considered. All Ph.D. Committee members sit in on this part of the meeting, which also is open to the Heinz community. In the other part of the meeting, the progress of individual students is considered. In order to maintain confidentiality of individual student records, this part of the meeting is closed to students.

Students may petition the Ph.D. Committee for formal action to waive or modify requirements of the Ph.D. program, such as exempting a required class. Petitions must be submitted and approved in advance of the action to which they pertain. A copy of this petition can be found on the Heinz College website.

All petitions should include a clearly written statement of the problem or issue, the suggested remedy or proposed plan, and supportive evidence, if relevant. A statement of support from the student's Advisory Committee is especially helpful. Petitions should be given to the Ph.D. Program Director.

Students are entitled to appeal any Ph.D. Committee rulings to the Dean in writing. The Ph.D. Program Director should also be notified by the student of an appeal so that appropriate Ph.D. Committee information can be forwarded to the Dean.

B. The Student's Faculty Advisory Committee

Since the College wishes to attract students of varied backgrounds and professional interests and to produce graduates capable of creative research, it does not prescribe a single course of study. The Ph.D. curriculum has remarkable flexibility within a common structure. To best tailor opportunities to the needs of an individual Ph.D. student, students work closely with their Faculty Advisory Committee, which is composed of at least three faculty members. The Advisory Committee may change in membership and form as the student progresses through the program.

Each entering student will be assigned at least one faculty members to serve as Initial Advisors. The student will consult with his or her Initial Advisors before classes commence to form an Advisory Committee. The Initial Advisors need not be on the Advisory Committee, i.e., the student may change advisors at this point (as well as later). The student should have an Advisory Committee in place before the end of the first semester; its composition is subject to Ph.D. Committee approval.

A student's Advisory Committee consists of at least three members, at least one of whom is a Heinz faculty member, and at least two of whom are Carnegie Mellon faculty members. Advisory committee members should be tenure or research track faculty, although exceptions may be made for teaching track faculty who have research credentials. If a student wishes to have a teaching track faculty member on their committee they should consult with the Ph.D. Director.

One member is designated as chair; that person should be on campus in Pittsburgh. The choice of a chair should be made with care. In an educational environment such as this one, which has great flexibility, the chair can have substantial influence on the quality of a student's educational experience. The student and the chair will together select members of the Advisory Committee. The Advisory Committee and the student must develop a shared vision of the student's educational objectives to insure that a plan emerges with reasonable prospects of becoming reality. The committee should reflect a student's current research interests, and students are encouraged to change their committee promptly as circumstances and their interests evolve.

Faculty on an advisory committee serve voluntarily and are expected to be actively involved in the student's professional growth. It is recommended that students convene a meeting of their entire Advisory Committee as a group at least once a semester. Students with questions about the appropriate composition of an advisory committee should consult with a member of the Ph.D. Committee. Further, students are encouraged to seek "second opinions" about educational and career issues from members of the Ph.D. Committee or other appropriate faculty.

Before presentation of a required research paper, the student's Advisory Committee chair must certify to the Ph.D. Committee that it is "ready for presentation." This indicates that the members of the advisory committee have read the paper and feel that it is of quality sufficient to pass.

C. Educational Plan

All Ph.D. students including those who are ABD (*All But dissertation Status*) must have on file with the Ph.D. Committee an up-to-date and carefully crafted educational plan developed in conjunction with their Advisory Committee. The educational plan is updated and revised annually. The educational plans should be submitted to the Ph.D. Program Director by a designated date each year. This date will generally be the end of the spring semester. The educational plan should document the student's educational strategy, career objectives, and the student's progress in the program. All memos pertaining to paper presentations, leaves of absence, exceptions to coursework, and petitions must be attached. The form for this plan is available on the Heinz College website. <http://heinz.cmu.edu/academic-resources/student-handbook-forms/index.aspx>

The plan must be submitted under the joint signature of the student and the chair of the Advisory Committee. The Ph.D. Committee will review each plan and provide formal feedback to each student/Advisory Committee team. Failure to submit an education plan will result in automatic probation. Further penalties may ensue if the education plan is not submitted. Those penalties are at the discretion of the Ph.D. Committee.

D. Faculty Reviews of Ph.D. Students' Progress

The Ph.D. Committee reviews each student's progress at the end of each academic year. If the committee has questions about certain issues a student and the student's advisors may be requested to meet with the committee to discuss these issues.

There are three main reasons it is important for students to go through the program in a timely fashion. First, students do better on the job market (other things equal) when they complete the program faster (4-5 years best, 6 is ok, after that questions arise). Second, there are substantial opportunity costs to a student spending an extra year in the program (e.g., the foregone earnings for new assistant professors). Third, the Heinz College is better able to recruit potential students the better the current students do on the market and the shorter the time they take to completing a Ph.D. Students inquiring about the program typically ask the Ph.D. Program Director about placement and program duration.

A student is in good standing if he or she has satisfied all the requirements for his or her class level. First year students must fulfill the following requirements:

- Presentation of an adequate beginning on a research paper in the Ph.D. Seminar. This generally constitutes a well-defined topic and plan of research.

- Grades of B or better. No incompletes which are not adequately explained.
- Sufficient number of courses taken (minimum 72 units).
- Submission of a satisfactory educational plan by the deadline.

Second year students must fulfill the following requirements:

- Presentation and successful defense of a First Research Paper no later than the assigned date.
- Grades of B or better. No incompletes which are not adequately explained.
- Sufficient number of courses taken (144 units minimum)
- Submission of a satisfactory educational plan by the deadline.

Joint students need to comply with respective program requirements. If a student is dropped from the associated sister program for any reason, they must petition to continue as Heinz only student; absent such petition they will be dropped from the program. The PhD committee will make the final decision on their status.

Third-year students must fulfill the following requirements:

- Presentation and successful defense of a Second Research Paper no later than the assigned date.
- Grades of B or better. No incompletes which are not adequately explained.
- Submission of a satisfactory educational plan by the deadline.

While there are no explicit requirements for fourth year students who have fulfilled the preceding requirements for the first through third years, a student who is making good progress through the program should attain candidacy by the end of their fourth year.

After achieving candidacy the student is required to submit an yearly summary of what they have accomplished the prior year, providing a list of conferences attended, presentations, classes taught, timeline to proposal and/or defense that sort of thing.

Students who have failed to meet one or more review criteria will be placed on probation, and may not be allowed to continue in the program. Absent extreme extenuating circumstances (e.g., a long-term illness, but see Section III E on petition for delay of annual review), a student who fails to remedy the deficiencies that prompted the probationary status by their next annual review will be dropped from the program. Students on probation who remedy the specified deficiencies by the next annual review but fail to meet review criteria for that annual review may again be placed on probation or may not be allowed to continue in the program.

A student whose progress appears deficient may be asked to meet with the Ph.D. committee during the annual review, along with the student's primary faculty advisor. The meeting will usually be short, around 15 minutes. The student may be asked to prepare a written document in advance of the meeting by the Ph.D. Program Director. The Ph.D. program director will provide guidance on the content and length of this document.

If in the judgment of the Ph.D. committee a student's deficiencies in progress are sufficiently great, the student may not be allowed to continue in the program. This can occur with or without a probationary period. Examples of such deficiencies are failure to demonstrate substantial progress on the first or second research paper or poor performance in coursework. A student who is dropped will no longer be permitted to register as a Heinz College Ph.D. student, and all stipend support will be terminated. Re-entry into the program requires a positive decision on a new application for admission.

The purpose of probation is to provide the student with a clear warning that his or her progress through the program is deficient and to make clear the consequences of not remedying the deficiencies. Its purpose is not to punish students. Thus, the stipends of students on probation will not be reduced and their probationary status will not be recorded on their permanent transcript or reported to potential employers.

However, students who are probation will not be allowed to receive any Heinz College or Carnegie Mellon support in excess of their guaranteed stipend. Second year students receive their full stipends by working as teaching assistants for 2 semester length courses, and third year students and beyond receive their full stipends by working as teaching assistants for 3 semester length courses. Students who are on probation will be allowed to TA no more than the minimum number of courses required to generate their guaranteed stipend while they remain on probation.

E. Graduate Student Concerns and Grievances

Informal Discussion

Ph.D. students are encouraged to discuss their concerns with the Ph.D. Program Director. The Dean is also available at any stage of the process. All discussions will be considered confidential.

Filing a Grievance

Graduate students who wish to file a formal grievance should submit their concerns in writing to the Dean. The Dean will ask each person involved to respond in writing and will render a decision or refer the situation to a specially constituted grievance committee. A decision will be rendered within thirty days. The nature of the grievance, the written materials and the findings are considered confidential for all parties involved.

IV. FINANCIAL SUPPORT FOR DOCTORAL STUDENTS

A. General Policy

The goal of the Heinz College is to provide doctoral students with an outstanding education and to enable them to obtain the research skills necessary to receive their degrees. Since successful completion of the doctoral program requires a considerable commitment of time and effort, students must be prepared to make a substantial financial, as well as intellectual, commitment to their education.

The College's financial support policies are designed to assure that students can successfully complete the doctoral program. Support from the College will be provided through a combination of tuition scholarships, stipends, and teaching assistantships. In addition, full-time students who are U.S. citizens and who need additional support beyond what the College can provide may apply for federal or state educational loans.

Students are encouraged to seek and obtain external funding support to help cover the costs of tuition and living expenses, particularly after their first year. The College works to obtain external funding for scholarships and fellowships for Ph.D. students wherever possible. When such funding is obtained, the scholarships and fellowships will be awarded to qualified students based on the extent to which they meet criteria specified by the funding agency and such other criteria as the College may deem appropriate. In addition, the College's faculty obtain funding under research grants that can be used to support doctoral students. Students are encouraged to contact faculty to learn about the opportunities available and take advantage of them where feasible and appropriate. And finally, students can and should apply directly to foundations and agencies for financial support.

B. Tuition and Other Support

1. Tuition

All doctoral students in residence at the Heinz College (including those who have achieved candidacy) will be required to register for a minimum of 36 units each semester during regular academic years until they have completed their degree. Students will be charged for the units they have registered for at the official full-time Heinz tuition rate in effect for that semester. Students in their first through sixth years in the program receive full tuition scholarships. Scholarships after the 6th year are at the discretion of the Ph.D. committee.

Students are strongly encouraged to apply for external scholarship support to help them pay tuition charges. The College will provide assistance to students in identifying sources of support and in applying for them. As described in the next section, a student who obtains an external tuition scholarship through his or her own initiative is eligible to receive 25 percent of the tuition scholarship in the form of extra stipend support. This applies only to funding by the student from organizations external to CMU, not to scholarships awarded to the student from a CMU program, even if that program is funded by an external organization.

Students receive a full tuition scholarship from the College during their first through sixth academic years. For students in residence, this scholarship covers the full costs of Heinz tuition for full-time graduate work (i.e., 36 units or more of coursework), and will enable the student to take courses at the Heinz College, at other departments of Carnegie Mellon University, and at the University of Pittsburgh according to standard cross-registration procedures. For post-candidacy students who are not in residence, this scholarship will cover the costs of 5 units of coursework. Tuition scholarships for students beyond their sixth year in the program are awarded at the discretion of the Ph.D. committee.

2. Support for Living Expenses

The financial aid program is designed to provide doctoral students with the financial support necessary to enable them to successfully complete the program. This support also allows the student to gain classroom experience that is valued in the academic marketplace.

Every PhD student, in good standing, receives a full-tuition scholarship for their entire tenure in the program. Beginning in Fall 2013, students who remain in good standing receive the following financial aid during the academic year (9 months):

Financial aid will generally be provided in the form of stipends and payments for services rendered to the College. Such services will generally be in the form of teaching assistantships (TAships). Full-time students who are U.S. citizens and who need additional support may apply for federal or state educational loans.

	Year 1	Year 2	Years 3-6
Full-Tuition Scholarship	Yes	Yes	Yes
Total Pay (composed of Stipend plus Teaching Assistantships)	\$24,000	\$24,000	\$24,000
Stipend*	\$24,000 (no work required)	\$12,000 (no work required)	\$6,000 (no work required)
Teaching Assistantships	N/A	2 TA positions at \$6,000 per semester length TA; \$3,000 per mini TA	3 TA positions at \$6,000 per semester length TA; \$3,000 per mini TA

*See the following bullet points for eligibility to receive the stipend in full.

TAship refers to a semester length course (or equivalent). Minis will be compensated at ½ the rate of semester length courses. This applies to students 100% supported by the Heinz College. Students who receive their support from outside Heinz will have their funding arrangements determined by the funder. However, pay will be no less than \$24,000 over the 9 month academic year.

Concerning this financial aid package, there are several important points:

1. The student is not obligated to take advantage of the TAship opportunities. The College is only

committed to provide such opportunities to qualified students. In addition, continued TA opportunities will be provided only if TA evaluations are satisfactory. Students who do not perform TA duties in a satisfactory manner will be required to seek assistance from the Eberly Teaching Center and show evidence of improvement in order to continue to receive TA assignments. Indeed students are encouraged to seek out work opportunities as a research assistant on funded research projects or to seek out research fellowships.

2. Students who are in good standing (not on probation) may TA more than the number of courses indicated above in order to earn additional pay, conditional on the willingness of the Heinz College to hire them. Additional work as a TA is generally available, both during the academic year and during the summer. Students should bear in mind, however, the tradeoff between additional time spent TAing and making progress on their own research.
3. International students holding a F-1 visa are permitted (by U.S. government rules) to work no more than 20 hours per week during the academic year. This is for all jobs combined. As a consequence, they may TA no more than 2 courses maximum per semester, if fully supported by Heinz. The work hours limit applies to all work, so if a student is supported partially or fully outside Heinz their total work hours per week must be no more than 20. International students receiving financial support from outside Heinz must report this to the Ph.D. program coordinator. The work hour limits apply only during the academic year (e.g., not during the summer). You cannot volunteer hours for positions which are normally paid.
3. Any student beyond their first year who obtains through his or her own initiative an externally funded tuition scholarship will receive a stipend award equal to 25% of the tuition award. This applies only to funding obtained by the student from organizations external to CMU, not to scholarships awarded to the student from a CMU program, even if that program is funded by an external organization.
4. Awards do not include health insurance or university fees; students are responsible for covering these expenses themselves.
5. Financial arrangements may differ for students in joint degree programs.

3. Teaching

For Ph.D. students who are seeking academic jobs, it is becoming increasingly important to have teaching (in addition to TA) experience in the classroom. This is especially true to be competitive for jobs in professional schools. Many other Ph.D. programs are finding ways for their students to get this experience.

Ph.D. students who are in good academic standing may be invited to teach courses at the Heinz College. Students are not eligible to teach courses until after they have achieved candidacy, except where the student has demonstrated excellent teaching skills and where the student can make a convincing case that the teaching burden will not impede their progress in the Ph.D. Program.

4. English Language Requirements for Foreign Students

Carnegie Mellon University's Organizational Announcement No. 285A requires that all Teaching Assistants whose first language is not English must have their language skills assessed by the staff of the Center for English as a Second Language (ESL Center). Students who do not meet the criteria established by the ESL Center cannot receive teaching or teaching assistant positions at the Heinz College. All Heinz Ph.D. students whose first language is not English should contact the ESL Center early in their first year to be tested and to arrange for any necessary remedial work, so that they can qualify for a teaching assistantship during their second year.

C. Attendance at Conferences

Students are encouraged to submit their papers for presentation at appropriate research conferences. If a student's paper is accepted at such a conference, the College will pay to cover the student's registration at the conference and travel costs (transportation, hotel, meals) associated with the conference (see the last paragraph in this section for the dollar limits on reimbursement). The College will pay for conference registration and travel costs to one conference of an appropriate professional association the purposes of job search. This trip will ordinarily be taken by students who expect to complete their degree within the current academic year. To obtain reimbursement, students must have their travel plans approved by the faculty advisor prior to attending the conference.

The Heinz College will pay for up to \$2,500 for such travel in total during a student's tenure at the Heinz College. The \$2,500 may be divided in any way the student sees fit (e.g., all for one trip, \$500 per trip, etc.).

The university pays for business and travel expensed incurred in connection with university business that are appropriately documented and are in accordance with IRS accountable plan rules. The basic premise governing business and travel expenses is that an individual should neither gain or lose funds in the course of conducting university business. Assuming a reasonable level of safety and convenience for the individual, every effort should be made to keep university business and travel expenses to a minimum. All expenses must have a valid business purpose. The university will not reimburse or pay for expenses that are inherently personal in nature. The university will not pay for or reimburse business or travel expenses that have been or will be reimbursed from any outside sources. The university will not provide travel advances, pay directly or make reimbursements for the travel expense of companions/spouses or non-employees who accompany students on university business, except in limited circumstances. (See Companion/Spousal Travel and Business Expenses)

A copy of the Business and Travel Expense Policy can be found at:

<http://www.cmu.edu/finance/controller/bte/files/BTF.policy.pdf>

Questions regarding university reimbursement policies should be addressed to the program coordinator or to the Heinz Fiscal Management Office for clarification.

Students should discuss the specifics of conference reimbursement with the Ph.D. Program Coordinator before planning travel. Expenses are submitted to the Ph.D. Program Coordinator.

D. Computer Support

All incoming PhD students will receive one computer for office productivity work from the Heinz College. This will be the only computer you will receive from the college for the duration of the program. You can choose a Heinz configured laptop or desktop. You can also go to the CMU computer store and configure your own computer. Ask for a copy of the Computer Policy from the PhD coordinator or from Heinz Computing. The cost of this computer cannot exceed \$1300.

The CMU Computer store is located in the lower level of the bookstore and has many different computer manufactures and configurations available. They can also create custom computer configurations <http://www.cmu.edu/stores/computer/>

Students should use their Andrew accounts for electronic mail. Students are encouraged to use personal computers for word processing.

Carnegie Mellon has many site licenses that offer software for free or at a discounted price. A list of site licensed software can be found on the CMU Computer website. <http://cmu.edu/computing/software>.

The Heinz College also holds several site licenses. If you do not see the software you want on the CMU Computing site, contact Heinz Computing Heinz-computing@andrew.cmu.edu to see if it is available through the college.

V. EXPECTATIONS FOR PROFESSIONAL CONDUCT

A. Ethical Standards

Doctoral students are expected to adhere to the highest ethical standards. They are expected to be honest and to be contributing members of the College's community. Cheating on examinations or plagiarism of written work are grounds for dismissal from the program. The Heinz College follows the university policies in dealing with these issues.

<http://www.cmu.edu/policies/documents/SexHarass.html>

Students should also be mindful of their responsibilities in their teaching assistant work. Being an accomplice to cheating or plagiarism is specifically precluded. Further details are available in the Heinz College's Teaching Assistant Handbook.

Carnegie Mellon University does not discriminate; and Carnegie Mellon University is required not to discriminate in admission, employment or administration of its programs on the basis of race, color, national origin, sex or handicap in violation of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 or other federal, state or local laws, or executive orders.

In addition, Carnegie Mellon University does not discriminate in admission, employment or administration of its programs on the basis of religion, creed, ancestry, belief, age, veteran status, sexual orientation or in violation of federal, state or local laws, or executive orders.

Harassment of an ethnic, political, or sexual nature are grounds for dismissal from the program.

Carnegie Mellon University is committed to maintaining a learning and work environment free from sexual harassment. Carnegie Mellon is dedicated to the free exchange of ideas and the intellectual development of all members of its community. For this exchange and development to take place freely, the institution promotes the confidence to work, to study, to innovate, and to perform without fear of harassment.

Sexual harassment is specifically prohibited by Carnegie Mellon University. The definition of sexual harassment as formulated by the Federal Equal Employment Opportunity Commission (EEOC) has been adapted for our educational environment. The adapted EEOC definition is: any unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature when:

1. submission to such conduct is an explicit or implicit condition of employment, or of evaluation or advancement of a student; or
2. submission to or rejection of such conduct is used as the basis for an employment, evaluation, or advancement decision; or
3. such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or creating an intimidating, hostile, or offensive work environment.

Software Piracy

The Heinz College makes a wide range of computer software and documentation available to students. The most commonly used software packages are installed on the hard disks of the personal computers at Heinz, while other packages can be borrowed from Computer Monitors.

Students who use software that is owned by the Heinz College are subject to the licensing agreements signed by the College, and are prohibited from making copies of software or documentation and from loaning the software to anyone, without explicit permission from the Heinz College. Students who violate these rules will be prohibited from using Heinz computing facilities and subject to disciplinary action.

B. Participation in the Intellectual Life of the College

Doctoral students are expected to be full and active participants in the intellectual life of the College. An evident sign of this participation is attendance at the seminars presented by faculty members and visitors to the College. Some of these presentations may be difficult to grasp--no matter, a Ph.D. student in the Heinz College is expected to be able to grapple with unfamiliar material and it is essential that Ph.D. students learn of research at the frontier. A further important sign of participation is attendance at the various paper presentations, thesis proposals, and thesis defenses of fellow doctoral students. Not only is such participation of intellectual value, it also shows support for other students and is a singularly

effective way of learning just what these hurdles involve. Students should find a seminar series, whether at Heinz or elsewhere, that they attend regularly.

Most doctoral students will also serve as Teaching Assistants in the Masters Programs. This is a good way to sharpen analytical skills, develop communication skills, and learn through personal contact with Masters students of the world of practice in public policy and management.

C. Participation in Professional Organizations

Ph.D. students benefit from membership in appropriate professional organizations. These organizations offer research journals, newsletters/websites with information on activities in the profession, and professional meetings with talks and opportunities to begin networks. Discuss with your Advisory Committee which professional association(s) is most useful for your area of interest.

VI. OTHER POLICIES

A. Registration Policies

In order that grades can be properly assigned in Ph.D. Readings and Research courses, it is necessary that students registering for such a course have a faculty supervisor. Students must obtain the faculty member's agreement to supervise the course. This applies to Ph.D. students at all levels, including those with candidacy.

B. Leaves of Absence

A Ph.D. student who is not going to be actively pursuing the degree for a period of time may apply to the Ph.D. Committee for a leave of absence. The leave of absence may be granted for a minimum period of one semester and a maximum period of three years. Generally a student seeking a leave of absence must be in good academic standing. Typically, a student will seek leave for either personal reasons--such as health conditions or family responsibilities--or for professional reasons--such as employment or pursuit of a professional degree. In certain circumstances a leave of absence may also be appropriate for a student who is not in good academic standing and the period of leave will be used in activity that materially enhances the student's potential for completing the Ph.D. program. Normally during a period of leave, the clock on expected rate of student progress will stop and financial aid will cease. A student who does not return to active work on the degree after the period of leave will no longer be a Heinz College Ph.D. student. If at some later time, the student desires to return to active work on the Ph.D. an application for readmission will be required. Students must petition the Ph.D. committee for a leave of absence.

C. All But Dissertation *in Absentia* or *in Residence* Status

All But Dissertation (ABD), status is intended for students whose only remaining requirements are the completion and defense of their thesis. Once a student meets the departmental criteria, All But Dissertation status must be approved by the department in writing to university-registrars-office@andrew.cmu.edu. Once students achieve All But Dissertations status, they must choose whether to complete their dissertation *In Residence* or *In Absentia*. A doctoral student *In Residence* maintains student status and all consequent student privileges and continues to be actively engaged with the university. A doctoral student *In Absentia* status, ABS, is one who has left the university with the intent of completing their dissertation but not actively engaged with the university and does not require university resources. When a student decides whether to pursue All But Dissertation *In Residence* or *In Absentia*, he/she must complete a Doctoral Student Status Agreement form, which is available through their academic department or on the HUB website. Once the agreement has been approved by the student's department, the student may change his/her status from *In Residence* to *In Absentia* multiple times. A student *In Residence* or *In Absentia* must meet the specific criteria noted in the policy. No student *In Absentia* will be verified by the university as a 'student' for immigration or loan purposes. All But Dissertation students in J1 or F1 immigration status must continue to follow the Department of Homeland Security regulations

The Doctoral Student Status Policy can be found online at <http://www.cmu.edu/policies/DSS.html> and replaces the previous All But Dissertation Policy.

D. Time to Defense

It is university policy, effective for students who entered the program after June 2011, that students have a maximum of ten years from initial enrollment (excluding approved leaves) to complete the degree. Any student who does not complete the degree in ten years will not be allowed to continue in the program.

E. Master of Philosophy Degree in Public Policy and Management or Information Systems and Management

Doctoral students in the Heinz College qualify for recommendation to the degree of Master of Philosophy in Public Policy and Management or a Master of Philosophy in Information Systems and Management upon granting of Ph.D. candidacy. Students having been granted candidacy who wish to have the Master of Philosophy degree conferred at the May Commencement should advise the Ph.D. Committee of this in writing prior to March 1.

In addition to the above provision, prior to candidacy a student may petition the Faculty through the Ph.D. Committee for one of the Master of Philosophy degrees. The student should have completed at least the first two years of the Ph.D. program according to an approved Educational Plan with grades in courses averaging B or better. The student should have completed a First Research Paper in a form approved by the Ph.D. Committee. The petition should detail the student's educational accomplishments

(including courses taken and grades) and attach a copy of the First Research Paper. The petition should indicate why the degree would be professionally useful to the student and indicate if the student is requesting a degree title in Public Policy and Management or Information and Management. It should include the endorsement of the student's Advisory Committee.

All Master of Philosophy degrees from the Heinz College will be awarded in "*Public Policy and Management*" or "*Information Systems and Management*," as judged appropriate by the Ph.D. committee. No other special field designations will be made.