PH.D. PROGRAM IN MIS[1]
KRANNERT SCHOOL OF MANAGEMENT
PURDUE UNIVERSITY

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1. PHILOSOPHY

The PhD program in MIS is designed to produce world-class scholars in Management Information Systems. We measure our goal in the ability to place our PhD students in institutions where research, teaching, and service are encouraged and rewarded.

In line with this objective, we train our PhD students to recognize critical IS/IT research questions that may span one or more problem areas and to structure problems so that they can be effectively addressed. For this, students must master analytical and/or empirical methodologies from disciplines such as economics, operations research, and computer science. Coursework, graduate assistant appointments, and mentoring relationships are aimed at developing these research capabilities. PhD students demonstrate their research capabilities through:
   1) Passing their preliminary examination
   2) Defending their dissertation proposal and final dissertation.

Apart from research, we also want to ensure that our PhD students are capable of conducting graduate and undergraduate level MIS coursework. Finally, we expect our students to actively participate in the information systems community. Presenting papers in conferences or workshops and reviewing manuscripts are some of the ways in which students can serve the IS community.

The tenure of an MIS PhD student at the Krannert School of Management is typically four years. Tuition-waiver and other funding opportunities are provided for the entire four-year duration, provided academic performance remains satisfactory. During this period, students will have to complete the set of requirements outlined below. Note that we seek to provide an environment conducive to research. We strongly encourage students to avail these opportunities and become involved in research activities as early as possible in order to be able to complete their program in four years.

2. MIS PHD PROGRAM REQUIREMENTS

The MIS PhD program requires both coursework and a dissertation. Students must complete the following requirements:
   ❑ Major Area (MIS)
   ❑ Minor Area
   ❑ Research Methods
   ❑ General Management Skills
   ❑ PhD Research

Students' performance will be evaluated yearly during the annual MIS area PhD student evaluation meetings.

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[1] This document is an addendum to the "Degree Program Requirements for PhD in Management" (http://www.mgmt.purdue.edu/programs/phd/degree_programs/Intro_to_Management.htm) document of the PhD Program Office at the Krannert School of Management, and outlines the requirements specific to the MIS area. All requirements for the PhD in Management also apply.

2.1. Major Area Requirement

All MIS area PhD students have to take MIS PhD seminars for a two-year period starting with the first semester of joining the MIS PhD program. Usually, these seminars are two-credit, half-semester courses. The MIS seminars serve three purposes. First, they provide grounding in the core disciplines related to MIS. Second, they provide methodological skills necessary to do significant research in the field. Third, they provide an overview of the field of MIS and the research activities of the faculty.

2.2. Minor Area Requirement

In addition to the major area, all students are expected to choose a minor. Students in the MIS area have commonly selected their minor area from one of the following – Operations Management (OM), Industrial Engineering (IE), and Computer Science (CS). Other areas may be chosen by the student through discussion with the MIS faculty members. To satisfy this requirement, students should complete 6 credit hours of graduate-level coursework in the respective area.

2.3. Research Methods Requirement

All Krannert PhD students are required to complete at least two research methods topics. Historically, PhD students in the MIS area have selected two of the following three research methods topics – 1) Applied Statistics, 2) Economics, and 3) Analysis of Algorithms and Optimization (MIS area special topic).

To complete the *Applied Statistics* research methods topic, the student is required to complete one of the following categories. With permission from the area advisor, a student may be permitted to mix and match courses from the two categories:

Category 1:
- ❑ ECON 67000: Probability and Statistics
- ❑ ECON 67100: Econometrics I
- ❑ ECON 67200: Econometrics II
- ❑ ECON 67300: Time Series Econometrics OR ECON 67400 Microeconometrics

Category 2:
- ❑ One of STAT 51100: Statistical methods, STAT 51700: Statistical inference, STAT 52800: Introduction to mathematical statistics (pre-req STAT 51900)
- ❑ One of STAT 51200: Applied regression analysis[*], STAT 52500: Intermediate statistical methodology, MGMT 67200: Quantitative methods III
- ❑ One of MGMT 67700: Research methods: Applied multivariate analysis, STAT 52400: Applied multivariate analysis

Note that all Krannert PhD students must complete two courses in the *Applied Statistics* research methods topic regardless of whether they are including the *Applied Statistics* research methods topic as one of their research methods requirements.

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[*] This course may be offered during the summer.

To complete the *Economics* research methods topic, the student is required to take the following courses:

- ❑ ECON 61500: Mathematics for Economists
- ❑ ECON 60600: Micro I - Consumer and Producer Theory

Choose from two from the following:
- ❑ ECON 60700: Micro II – Advanced Consumer and Producer Theory
- ❑ ECON 60900: Micro III – General Equilibrium and Social Welfare
- ❑ ECON 61000: Game theory (PhD)
- ❑ ECON 67600 Economics of Uncertainty and Information 1
- ❑ ECON 68500 Experimental Economics 1

To complete the *Analysis of Algorithms and Optimization* research methods topic, the student is required to take CS 58000 and at least two of the IE courses listed below. Note that a student, who has not been exposed to the concepts of data structures before, may find it beneficial to take CS 25100[*] (Data Structures), possibly as a pass/fail option before taking CS 58000. Also, note that IE 53500 (Linear Programming) is a prerequisite for all the 60000-level IE courses listed below.

- ❑ CS 58000: Algorithm Design, Analysis and Implementation
- ❑ IE 53700: Discrete Optimization Models and Applications
- ❑ IE 63100: Heuristic Programming (pre-req IE 53500)
- ❑ IE 63400: Integer Programming (pre-req IE 53500)
- ❑ IE 63900: Combinatorial Optimization (pre-req IE 53500)

Details related to the requirements for other research methods topics can be found in the "Degree Program Requirements for PhD in Management" document.

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[*] This course may be offered during the summer.

- **The MIS faculty strongly encourages students to take ECON 59000 Game Theory (MS) as early as possible in their Plan of Study.**

- **The MIS faculty encourages students to take ECON 61000 Game Theory (PhD), regardless of whether or not they are selecting *Economics* as a research methods topic in conjunction with their Plan of Study.**

- **The MIS faculty also encourages students to take CS 58000 (or, at least, CS 38100), if possible, regardless of whether or not they are selecting *Analysis of Algorithm and Optimization* as a research methods topic in conjunction with their Plan of Study.**

- **The MIS faculty strongly encourages students to take 12 credit hours each semester. This is to ensure that all the course requirements are completed at the earliest, thereby leaving enough time for research.**

- **Related to the above, students must take 9 credit hours in a semester to count towards major, minor, or research methods requirements. Any pre-requisite courses should be taken in addition to this.**

2.4. General Management Skills Requirement

The purpose of the General Managerial Skills requirement is to expose students to various functional areas of Management. This coursework also provides an exposure to the case method of teaching and to a professional masters' education. To satisfy the requirements in the general managerial skills (core) area, the student must take any three of the following six courses:

- ❑ MGMT 60000: Financial Accounting
- ❑ MGMT 61000: Financial Management I
- ❑ MGMT 62000: Marketing Management
- ❑ MGMT 65000: Strategic Management
- ❑ MGMT 66000: Operations Management
- ❑ OBHR 68100: Behavior in Organizations

Typically, PhD students in the MIS area take MGMT 61000, 62000, 65000 or 66000.

2.5. Waiving Requirements

Some of the above requirements (e.g., Minor, Research Methods, and General Management Skills requirements) may be waived based on the student's prior coursework. For example, if the student has an MBA degree, the General Management Skills requirement may be waived for him/her. A student interested in receiving waivers must submit a formal request for it to the MIS faculty with appropriate documentation (e.g., transcripts and syllabi).

2.6. Full-time Status Requirement

All PhD students must maintain full-time status during their tenure in the program. This entails registering for at least 9 credit hours during regular semesters (i.e., Fall and Spring) and at least 6 credit hours during Summer sessions.

2.7. Research and Teaching Appointments

Graduate assistant appointments – as a research assistant (RA) or a teaching assistant (TA) – provide mentoring relationships in research and teaching. All MIS area PhD students will participate as a graduate assistant during each semester of their four years in the program. RA roles involve PhD students in a faculty research project. TA roles will often begin with tasks such as grading and helping in computer lab sessions and progress to course delivery responsibilities. All students are required to teach at least one course during their four years in the program.

MIS area PhD students are encouraged to further develop their teaching capabilities above and beyond the teaching requirement mentioned above. Toward this end, they are strongly encouraged to sit in various MIS courses taught by faculty members. Students should obtain prior approval from the course instructor before doing so.

Students are also encouraged to sit in other courses taught by distinguished teachers at the Krannert School in order to enhance their teaching effectiveness. Once again, they should seek prior approval.

The Center for Instructional Excellence (http://www.cie.purdue.edu) at Purdue University provides many useful resources (e.g., teaching workshops, test scoring and analysis etc.) related to teaching. Students are encouraged to become familiar with and utilize the available resources.

3. Milestones

Several deliverables and formal feedback mechanisms are built in the program and are described below.

3.1. Yearly PhD Student Evaluation (years 1 through 4)

All MIS area PhD students will be evaluated annually by the MIS faculty. Every student currently in the PhD program must submit a self-evaluation report to the MIS area PhD coordinator(s) by the first Monday of July. The purpose of the annual evaluation is diagnostic – to check whether the student is making good progress and to identify areas of weakness so that the student may receive appropriate feedback to rectify these weaknesses throughout the four years in the program. Naturally, the focus of the student evaluation will shift from coursework to dissertation research as the student progresses through the program. The focus of the annual evaluations by year in the program is described as follows.

1st year evaluation
- ❑ Coursework performance
- ❑ Graduate assistantship performance

2nd year evaluation
- ❑ Coursework performance
- ❑ Graduate assistantship performance
- ❑ Teaching performance (if applicable)
- ❑ Preliminary exam performance (written portion)

3rd year evaluation

- ❑ Preliminary exam performance (paper)
- ❑ Coursework performance (if applicable)
- ❑ Graduate assistantship performance
- ❑ Teaching performance (if applicable)
- ❑ Dissertation progress

4th year evaluation

- ❑ Graduate assistantship performance
- ❑ Teaching performance (if applicable)
- ❑ Dissertation progress

If a student's performance and progress are deemed unsatisfactory, the MIS faculty will recommend to the Krannert PhD program that an academic warning be issued to the student. If the student receives two academic warnings, he/she may be dropped from the program.

3.2. First Year Paper (summer of 1st year)

PhD students are expected to complete a research paper during the summer of the first year in fulfillment of a satisfactory grade for MGMT 69900 (Research PhD Thesis). The paper is to be a detailed literature review of a topic chosen by the student. This paper may be co-authored with one or more faculty members. Generally, this paper will be the result of one or more RA appointments or of the extension of a paper submitted by the student in an MIS seminar. The student must submit the paper to the MIS faculty no later than August 15 of his/her first year in the program. This paper can later be further expanded and submitted for the research paper requirement of the preliminary exam.

3.3. Preliminary Exam (summer of 2nd year – fall of 3rd year)

The preliminary examination will have two parts – a written part and a research paper. The written part is offered in two subparts. The first subpart is a three-to-four-hour (half-day), in-class examination which will test the student's basic MIS knowledge. This subpart will include questions on material that is usually covered in an introductory MIS course/text as well as questions on major tools used in systems analysis and design (e.g., ER Diagrams and Data Flow Diagrams). The other subpart will be a take-home examination focusing on material related to the MIS research seminars.

The second part involves the preparation, submission, and presentation of a research paper. Each student is expected to produce a high-quality research paper appropriate for publication in an academic journal or a major academic conference. The student must submit the paper to the MIS faculty no later than October 31 of his/her third year in the program. The student will also present the paper before the faculty and other PhD students during the following November. The student will be provided verbal feedback on the paper and the presentation by the faculty.

A student must pass both parts of the preliminary examination to completely clear the examination. Upon successful completion, the student will receive a written notification from the PhD program. If a student fails any component of the preliminary examination, the student may be given an oral examination, may be asked to retake the preliminary examination, or may even be dropped from the program. If the student fails the examination a second time, he/she will be dropped from the program.

3.4. Dissertation Proposal Defense (fall of 4th year)

Each student should form a dissertation committee as early as possible. This committee will provide direction and quality control for the dissertation research. The student must develop a written dissertation proposal describing the research problem(s) being investigated and the method(s) to address the problem(s). The dissertation proposal must be defended before the dissertation committee (as well as other MIS faculty and PhD students) within a year after completing the preliminary examination.

More specifically, the student must submit the written dissertation proposal to the MIS faculty no later than October 15 of his/her fourth year in the program and the proposal must be defended no later than November 15 of that year. If the student's advisor feels that the student cannot meet this deadline, he/she must notify the MIS faculty in advance and explain the reason for failing to meet the deadline.

Note that the student has to successfully defend his/her dissertation proposal to be eligible to enter the job market. The MIS faculty will not write letters of recommendation for students who have not successfully proposed their dissertations.

- **Invitation for all presentations, including that for the preliminary exam paper presentation, dissertation proposal defense, and final dissertation defense should be sent to every MIS faculty and PhD students at least one week prior to the scheduled presentation. Relevant materials (e.g., paper, proposal document, final thesis etc.) should also be made available in advance.**

- **All MIS area PhD students are required to attend the presentations mentioned above by other students. If a student cannot attend a presentation, he/she must seek prior approval from the MIS area PhD coordinator(s).**

3.5. Doctoral Consortia (4th year)

Each year there are doctoral consortia associated with different professional organizations and conferences. These include the International Conference on Information Systems (ICIS), Decision Sciences Institute (DSI), Americas Conference on Information Systems (AMCIS), and the Big-10 IS Research Symposium.

ICIS is typically held in mid December. Participation in the ICIS doctoral consortium is considered quite prestigious and should be sought by all students who will be on the job market that year. Participation is by invitation only and each school can only nominate one student. Therefore, students must have made substantial progress on their dissertations by the beginning of summer to be considered for nomination. Students wishing to be considered for nomination must prepare a document summarizing his/her dissertation research by the middle of summer for evaluation by the faculty. The faculty will nominate one student for participation in the doctoral consortium. The ICIS doctoral consortium committee makes the final selection.

Similarly, DSI and AMCIS each hold a yearly doctoral consortium at their annual meetings, typically in August for AMCIS and November for DSI. Like the ICIS doctoral consortium, these also provide excellent opportunities to discuss research and to make contacts for job prospects.

The Big-10 IS Research Symposium is an annual meeting of the major MIS Programs in the Big-10 Universities. This too, is also an excellent forum for a student to present his/her research and to get acquainted with the faculty and other PhD students from other MIS programs in the Big 10. This symposium is held annually in late spring.

A limited amount of funding is available to students for attending doctoral consortia in their final year in the program. Eligible students should discuss the funding opportunities with the MIS area coordinator before making travel arrangements.

3.6. Dissertation Defense (end of 4th year)

The completed PhD dissertation must be defended by the student before the dissertation committee (as well as other MIS faculty and PhD students). Students are strongly encouraged to remain in residency until the dissertation is successfully defended.

4. JOB MARKET

In the IS discipline, job market activities typically start during the fall semester. Academic conferences such as the International Conference on Information Systems (ICIS), the Americas Conference on Information Systems (AMCIS) and the National Meeting of the Decision Science Institute (DSI) act as venues for screening interviews. Selected candidates are later invited to campuses for follow-up interviews and research presentations, during the following spring semester (and sometimes during the fall semester itself). The market normally clears by mid-April.

An MIS area PhD student typically enters the job market during his/her fourth year in the program, after having successfully defended his/her dissertation proposal. The preparation for the job market consists mainly of identifying universities with vacancies, preparing and submitting the job application packet, and preparing a research presentation. The following supporting materials are usually submitted in the application packet:

- ❑ Academic transcripts
- ❑ Academic curriculum vitae
- ❑ Statement of research interests
- ❑ Statement of teaching philosophy (including teaching evaluations, if available)
- ❑ Research samples (published and/or working papers)
- ❑ Letters of recommendation (which may be sent directly by appropriate faculty members)

Note that some of the above materials require extensive time and effort to compile. Hence, we strongly encourage students to start planning for the job market as early as in the summer of their third year in the program.

Just as job candidates use the Internet to search for and identify potential universities, universities often also use the Internet to identify and learn about potential job candidates. For this reason, we encourage students who are on the job market to develop and maintain a professional website to further promote their job applications.

- **MIS faculty members will not write letters of recommendation for any student who has not defended his/her proposal.**

- **All MIS area PhD students are strongly encouraged to practice their research presentation before the MIS faculty and PhD students prior to campus visits.**

5. FUNDING

All students will be funded as graduate assistants for four years either by the program or by external sources, provided they maintain satisfactory progress in the program. As mentioned earlier, limited funding opportunities for attending conferences may also be available on a case-by-case basis.

5.1 Fifth Year Funding for Doctoral Students

The MIS Area currently provides full funding (tuition waiver and half-time graduate assistantship) of all MIS area doctoral students for four years, contingent upon academic progress and performance in the assistantship. Four years is an extremely tight time frame to complete coursework, develop research skills, and begin a research record. However, the current resource base of the school does not allow for automatic extension of doctoral student assistantships beyond four years. Given resource and policy constraints, the MIS Area faculty is implementing a competitive proposal process for students seeking funding for their fifth year in the doctoral program.

In order to be considered for fifth year funding, a student needs to submit a written request for funding, to the MIS faculty by November 15th of the student's fourth year in the program. Both students and faculty should have a clear picture of both the dissertation progress by this date. Faculty will meet to review all student proposals and communicate the decision back to students no later than December 1st. The student should submit the following materials as part of their request for funding:

  a. Current CV
  b. Statement of intent for fifth year funding. The statement should include a clear and concise narrative of how the funding would benefit the research program of the student. Please keep in mind that the benefit should be in terms of further developing research papers for submission to top journals as opposed to having the opportunity to spend more time on the dissertation itself.
  c. Project plan. Students should submit a detailed project plan for the remainder of the fourth year as well as the fifth year, including deadlines and deliverables. Students should include approximate deadlines for conference paper submission (WISE, WITS, CIST, ICIS, etc.) as well as deadlines for defenses.

The general criteria for awarding fifth year funding to students will be the likelihood of the student finishing the dissertation by the end of the fourth year, so that ample time might be devoted to polishing and preparing papers for top journal submission.

Students awarded fifth year funding are expected to maintain a high level of performance in their assistantship duties. The student's dissertation advisor(s) will be required to report performance in both research and assistantship duties to the MIS faculty at regular MIS faculty meetings.

6. ADVISOR ROLE AND MENTORING

Upon entering the PhD program, each student should strive to establish advisor-advisee relationships with one or more MIS faculty members. The dissertation advisor, who should be an MIS faculty member, will be responsible for mentoring the student through his/her dissertation. More than one faculty member may serve as co-advisors for a student. We require that the student decide on his/her dissertation advisor by the end of the second year. Other members of the dissertation committee may be chosen at a later time. We strongly suggest that the dissertation committee includes at least one non-MIS faculty member.

The advisor has to approve the "plan of study" before the end of the second year. This approved "plan of study" should be submitted to the PhD program office as per the Krannert PhD requirements.

7. ACADEMIC INTEGRITY AND PLAGARISM

In carrying out research and teaching activities, we build upon the knowledge generated by others. It is critical to properly acknowledge the contributions of others in our work and to not falsely represent the work of others as our own. Misrepresenting the work of others as your own or improperly citing other work can be considered plagiarism and academic dishonesty and will not be tolerated. Students are required to abide by the Purdue University Student Conduct Code (available at http://www.purdue.edu/ODOS/osrr/conductcode.htm) and the guidelines for academic integrity (available at http://www.purdue.edu/ODOS/osrr/integrity.htm) at all times. Furthermore, students are encouraged to review what does and does not constitute plagiarism at the Purdue University Online Writing Lab's "Avoiding Plagiarism" page at http://owl.english.purdue.edu/owl/resource/589/01/ and the Indiana University "Understanding Plagiarism" page at http://education.indiana.edu/~frick/plagiarism/) http://education.indiana.edu/~frick/plagiarism/index2.html.

7. EXAMPLE TIMETABLE

Term	First Year	Second Year	Third Year	Fourth Year
Fall	❑ Coursework - MIS PhD seminars - Minor / research methods courses - General managerial skills courses ❑ RA/TA appointment	❑ Coursework - MIS PhD seminars - Minor / research methods courses - General managerial skills courses ❑ RA/TA appointment ❑ Sit in MIS course ❑ Teaching	❑ Preliminary exam (paper) - Submission (by October 31) - Presentation (November) ❑ RA/TA appointment ❑ Sit in distinguished teacher course ❑ Teaching	❑ Propose dissertation - Submission (by October 15) - Defense (by November 15) ❑ RA/TA appointment ❑ ICIS doctoral consortium ❑ Prepare for the job market ❑ Job market interviews - Conferences - Campus visits
Spring	❑ Coursework - MIS PhD seminars - Minor / research methods courses - General managerial skills courses ❑ RA/TA appointment	❑ Coursework - MIS PhD seminars - Minor / research methods courses - General managerial skills courses ❑ RA/TA appointment ❑ Sit in MIS course ❑ Establish dissertation advisor ❑ Submit Plan of Study document ❑ Teaching	❑ Develop dissertation proposal ❑ Big-10 research symposium ❑ RA/TA appointment ❑ Prepare summary of research ❑ Prepare ICIS doctoral consortium paper ❑ Teaching	❑ RA/TA appointment ❑ Job market interviews - Campus visits ❑ Finish dissertation
Summer	❑ Coursework - Minor / research methods courses ❑ RA/TA appointment ❑ First year paper ❑ 1st year evaluation	❑ Preliminary examination (written) ❑ RA/TA appointment ❑ 2nd year evaluation	❑ RA/TA appointment ❑ 3rd year evaluation ❑ Prepare for the job market	❑ Defend dissertation ❑ Graduation

REVISION HISTORY

Date	Changes	Status
7/25/2005	Added section 3.2. first year paper requirement	Approved
8/8/2005	Edited section 3.4. specifying a due date for notifying MIS faculty and PhD students of presentations.	Approved
8/17/2006	Added section 7. Academic Integrity and Plagiarism and added teaching to years 2 and 3 of the academic time table	Approved
10/23/2008	Changed Economics research method requirements and changed wording for CS 580 and ECON 690C	Approved
10/2/2009	Changed Applied Statistics and Economics research methods requirements per Economics course restructuring and changed General Managerial Skills requirements per Professional Masters Program curriculum changes.	Approved
11/6/2009	Merged Fifth Year Funding document with MIS Area PhD Program Requirements document	Approved
5/4/2011	Changed wording regarding ECON 59000, ECON 61000 and CS 58000	Approved