

GRADUATE STUDENT HANDBOOK

MANAGEMENT SCIENCES DEPARTMENT
TIPPIE COLLEGE OF BUSINESS
THE UNIVERSITY OF IOWA

Revised Spring 2008

Introduction

This document is a guide for students pursuing, or wishing to pursue, a PhD degree in the Department of Management Sciences at the University of Iowa. It describes degree requirements, departmental policies, and financial aid opportunities. It should be considered a supplement to the *Manual of Rules and Regulations of the Graduate College* and the *General Catalog* of the University of Iowa. The latest versions of these documents can be found online from the University's main web site, <http://www.uiowa.edu>. Additional information about the department, including the most recent version of this document, may be found at the department's site, <http://www.biz.uiowa.edu/mansci/>.

The policies and procedures outlined in this document are effective in the fall semester 2005, and were last revised in spring 2008. Continuing students may choose to follow the procedures that were in effect during their first year, if they were changed by this document.

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Admissions

Students seeking admission to the PhD program in Management Sciences are subject to the both the minimum standards set by the Graduate College and specific departmental standards. The basic requirements include:

- an undergraduate degree, or equivalent;
- a minimum GPA of 3.0 on a 4.0 scale;
- completion of either the GRE or the GMAT;
- if applicable, a minimum TOEFL score of 600 on the paper-based test (250 on the computer-based test, 100 in the internet-based test).

Because the program is small (typically 10-15 students, with 2-4 new students admitted each year), the admissions process is extremely competitive. Therefore, while there is no specific minimum for GRE/GMAT scores, successful candidates will typically have very strong quantitative and analytical scores. Similarly, preference is given to applicants with strong GPA, prior graduate work, and research experience in a relevant field. Applications are further evaluated based on the student's statement of purpose and reference letters.

Details of the application process can be found at the Tippie College of Business web site at <http://www.biz.uiowa.edu/phd/>. Applications are accepted only for the fall semester, and are due by February 15 for fall admission. The department does not offer deferred admission; an admitted student who does not matriculate in the academic year following admission must reapply for the following fall semester if they wish to be considered.

Support

Several forms of financial support are available through the Management Sciences Department and the Graduate College. These include graduate assistantships (both teaching and research assistantships), scholarships, and University of Iowa Presidential Graduate Fellowships. In general, every student admitted to the department will be guaranteed three years of employment at the standard 50%-time support level, subject to qualification as a teaching assistant (see below). Support beyond the three-year period is subject to the student's progress toward the PhD degree.

Specific terms and conditions of employment for graduate assistants are largely governed by the collective bargaining agreement between the University and the United Electrical, Radio and Machine Workers of America union, Local 896, more commonly known as COGS. The COGS contract may be viewed from the University web site at <http://www.uiowa.edu/hr/relations/Cogs/cogs.pdf>.

Teaching Assistantships

Teaching assistantships are the most common form of financial aid. These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of

future college teachers. Many students are employed as TAs during their entire time in the program.

In order to qualify for employment as a teaching assistant, students whose native language is not English are required to pass two exams offered by the University: the SPEAK test, a general test of spoken English, and the English Language Performance Test (ELPT), a practice lecture test given to students who pass the SPEAK test. The department will register students for these exams. More information on these exams can be found at <http://www.uiowa.edu/~iiepesl/TAPE/TAPEindex.html>.

A student who fails to qualify as a TA will be expected to enroll in the suggested TA preparation courses in order to maintain their enrollment status in the department. Any student who does not qualify as a TA during their first year in the program will not be offered further financial aid by the department.

Research Assistantships

A limited number of research assistant positions are available to students in the PhD program. Typically these are offered by individual faculty and are paid through research grant funding. They are available to advanced students who show exceptional research potential. To learn more about RA opportunities, students should contact the individual faculty member.

One departmental RA is also offered. This position is awarded on a competitive basis each semester. See the appendix for details.

Subject to available funding, first-year students will be offered a research assistant position at the 25% support level. It is expected that students will use this support to explore different research areas with departmental faculty members and establish a foundation for their own research. They will supplement this support, up to the 50% level, with appointments as either teaching assistants or graders.

Tuition

The University of Iowa does not waive tuition for graduate students. However, the Department of Management Science does, in general, pay all tuition for students employed as either RAs or TAs. This funding is in addition to the stipend received by the student for their assistantship.

Fellowships

Exceptional applicants may be offered a graduate fellowship. These fellowships are available to incoming students (not returning students) from the Graduate College and are awarded competitively based on applications submitted by the department. They provide tuition and fees for up to five years, along with a stipend.

The department also offers a summer research fellowship to most continuing students. This award is typically in the range of \$2000 - \$2500 per summer. Details for applying for this award

can be found in the appendix. Results from summer research fellowships will be evaluated by the students' advisors during the following fall semester. Students who do not make satisfactory progress during the period of the fellowship will not be offered future summer fellowships.

Travel

The department provides limited funds for graduate students to attend appropriate academic conferences for the purpose of presenting their research. Awards of up to \$500 per academic year (pre-qualifying exam) or \$1000 (post-qualifier) are available. Expenses are limited to travel, conference registration, lodging and food. Students are expected to apply for any other available funds, such as student scholarships and Graduate College travel awards. The application form may be found in the appendix.

Ph.D. Degree

The PhD program in Management Sciences prepares students for research, teaching and other scholarly endeavors in an academic or industrial setting. The coursework requirements emphasize applied mathematics and applied computing, along with a grounding in business processes. The program also requires a series of written and oral examinations, culminating in the production and defense of a dissertation describing original research results. The requirements described here are in addition to the University-wide requirements for the PhD degree described in the *Manual of Rules and Regulations of the Graduate College*.

Advising

Every PhD student must have a faculty advisor from the Management Sciences Department. Upon admission, each student is assigned an academic advisor. During their first one to two years in the program, it is expected that the student will choose a faculty member whose research interests align with their own to serve as academic and research advisor, and chair of the student's thesis committee. The advisor / advisee relationship requires the consent of both parties and can be terminated by either. It is expected that a student will complete a Plan of Study form (see appendix) in consultation with his/her advisor every semester, and submit the completed form to the department.

Students wishing to pursue a PhD with an advisor who is not a member of the Management Sciences faculty must submit a request to the Director of Graduate Studies (DGS) requesting that an external chair be appointed. A Management Sciences faculty member must be appointed as co-advisor.

Course Requirements

A minimum of 72 credit hours is required for the PhD Degree.

Interdepartmental Core Requirement (6 hours):

Two PhD courses from other College of Business department 3 credit hours

Departmental Core Requirements (9 hours):

Operations Management 3
 6K:292 Supply Chain Management

Management Information Systems 3
 6K:272 Advanced Database Analysis

Quantitative Methods 3
 6K:286 Linear Programming

Other courses may be substituted with departmental approval.

Research Methodology (12 hours):

22S:153 Mathematical Statistics I 3
 22S:154 Mathematical Statistics II 3
 Choose two of the following:
 6E:203 Microeconomics I
 6K:287 Discrete Optimization
 22S:195 Applied Stochastic Processes I
 22S:196 Applied Stochastic Processes II
 22S:158 Experimental Design & Analysis
 22S:256 Applied Multivariate Analysis
 22C:231 Design & Analysis of Algorithms
 Other applied mathematics or computing courses with departmental approval

Major area of study (12-15 hrs)

A course taken as part of the departmental core or research methodology cannot be counted in the major area of study.

Information Systems	Operations Management	Quantitative Methods
6K:275 Knowledge Discovery	6K:287 Discrete Optimization	6K:287 Discrete Optimization
6K:278 Web Mining	6K:277 Heuristic Search	6K:277 Heuristic Search
22C:104 A Practical Intro to Computer Science	22S:195 Applied Stochastic Processes	6K:277 Dynamic Programming
	6K:277 Dynamic Programming	56:274 Stochastic Optimization
		56:271 Nonlinear Programming

Suggested electives for majors:

Information Systems	Operations Management	Quantitative Methods
6K:233 Text Retrieval	56:273 Stochastic Systems	22C:231 Design & Analysis of Algorithms
22C:231 Design and Analysis of Algorithms	56:274 Stochastic Optimization	22C:253 Algorithms in Discrete Optimization
6K:277 Heuristic Search	56:178 Digital Systems Simulation	22M:174 Optimization Techniques
	56:271 Nonlinear Programming	22C:137 Theory of Graphs
	56:266 Production Inventory Models	22M:170 Numerical Analysis
	22C:231 Design & Analysis of Algorithms	22C:177 High Performance and Parallel Computing

Other courses may be added or substituted with departmental approval.

Minor area of study (9-12 hrs)

Major and minor areas combined must total at least 24 hours. Minor areas outside of the department or even outside of the College of Business Administration are often appropriate. Examples of such areas are: Finance, Computer Science, Statistics, and Industrial Engineering. Minor courses from MIS, OM or QM can be selected from the major and elective courses listed above.

Thesis and elective hours (21 hrs)

In order to fulfill the 72-hour requirement for the PhD degree, students must complete another 21 hours of coursework. Up to 15 of these may be thesis hours (6K:290). Appropriate elective courses (including approved transfer credits) can also be used, subject to departmental approval.

Transfer Credits

Students with prior graduate coursework can request the transfer of some of these credits to reduce the 72 semester hours required for the PhD degree. Cases are considered individually, but a transfer of 9 hours for students with a Masters Degree in a technical area is typical. Transfer credits cannot violate Graduate College residency requirements. Students wishing to transfer credits should submit a petition to the College of Business PhD program coordinator.

Exams

The PhD program requires a series of examinations with different goals and formats. Two failures on any exam will disqualify the student from the PhD program. Variations from the suggested timeline may be approved by the Graduate Committee.

Preliminary PhD Exam: Fall 2nd year

The preliminary PhD exam is an oral examination on a research topic selected by the student with faculty assistance, and that the student studies during the summer of the first year. An examination committee of three management sciences faculty (selected by the student and his/her advisor) will conduct the examination. Specific requirements may be set by the student's committee; however, the exam typically requires two components: 1) A written report detailing a literature review and research work completed by the student, and 2) an oral presentation of this work. The committee will use the outcome of the oral examination and course grades earned during the first year to evaluate the student. Students failing the examination must retake it no later than the end of the following spring semester.

Major Concentration Qualifying Exam: Fall 3rd year

A written qualifying examination will be given in the fall of the 3rd year. The student, in consultation with his/her advisor, chooses five courses over which to be tested. These should come from the list of major courses but may also be core courses or electives as approved by the advisor. Part 1 of the exam is a 4-hour, closed-book exam containing one question from each of the five courses. Part 2 is a 2-hour, closed-book exam with a single, more advanced question from each course, from which the student must choose and answer three questions. Each question will be graded by the respective instructor on the following scale: High Pass, Pass, Marginal Pass, Marginal Fail, Fail. The Graduate Committee will then combine these grades and assign the student a grade on the exam. A grade of Conditional Pass on the exam is possible, and may require specific conditions of the student, including (re-)taking of a course, re-taking of one (or more) parts of the exam, etc.

Proposal Defense / Comprehensive Exam: Spring 3rd year – Fall 4th year

The student must prepare a written dissertation proposal and defend it in an oral examination. This exam serves the role of the "Comprehensive Examination" as described in the *Manual of Rules and Regulations of the Graduate College*. It is suggested that the committee of five faculty members for this examination consist of those most appropriate for supervising the dissertation and for administering the final oral dissertation defense examination.

All required coursework must be completed before the student can take the proposal defense / comprehensive exam. Prior to the exam, the student should obtain from the departmental office their doctoral plan of study checklist (see appendix), a copy of their latest transcript, and a copy of their current registration. Courses on the transcript and current registration that are not being counted toward the degree should have a line marked through them. The complete set of materials must be submitted back to the department office at least three weeks prior to the date of

the exam.

Final Dissertation Defense: Spring 4th year – Spring 5th year

The dissertation should be defended in the spring of the 4th or 5th year. The dissertation must describe original research performed by the PhD candidate. A committee of at least five faculty members is proposed by the student and his/her advisor, and approved by the department. The committee must have a majority of members from the Department of Management Sciences, and must have at least one member from outside the College of Business.

The student is responsible for knowing and meeting all deadlines set by the Graduate College for PhD candidates. An Application for Graduate College Degree and Examination Application form must be completed by the student and the departmental secretary, and submitted to the Graduate College at least three weeks prior to the exam (see Appendix). The student will determine a mutually-agreeable time and location for the defense, and arrange with the department secretary to reserve a room. Finally, the student will distribute the dissertation to the committee a minimum of two weeks prior to the defense.

Academic Review and Dismissal

The faculty will meet each fall to review all aspects of each student's progress towards a degree, with student standing ultimately determined by the faculty. Any student deemed to be making unsatisfactory progress will be placed on departmental probation, and shall be given a written explanation of the reasons for this action, along with a period of time (typically one year) within which the student must take corrective action. Failure to correct the reasons for the probationary action shall result in the student being dismissed from the program.

MA/BA Degree

In addition to the Ph.D. the department also awards Master of Arts degrees in Business Administration. This degree does not have a separate program, and is awarded only to students who fail to complete the PhD. The MA is a coursework-only degree and is subject to the requirements of the Graduate College, as found in the *Rules and Regulations of the Graduate College* manual. The major requirement is the completion of 32 semester hours of graduate coursework beyond the bachelor's degree. In addition, the department requires that the student complete at least one course from each of the three Management Sciences functional areas: Information Systems, Operations Management, and Quantitative Methods.

Appendix: Forms

The following pages contain standard forms relevant to the graduate program in Management Sciences. They are:

1. Ph.D. plan of study checklist
2. Written qualifying exam procedures
3. Comprehensive exam procedures
4. Request for travel support
5. Application procedures for summer fellowship
6. Application procedures for departmental research assistantship

PHD PLAN OF STUDY CHECKLIST

Last Name _____ *First Name* _____ *Advisor* _____

<u>COURSE NO.</u>	<u>COURSE TITLE</u>	<u>SESSION</u>	<u>GRADE</u>	<u>S.H.</u>
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1. Interdepartmental Core Requirements (6 hrs)

_____	PhD course from Marketing, Econ, Finance, Mgmt & Org, or Accounting	_____	_____	3 s.h.
_____	PhD course from Marketing, Econ, Finance, Mgmt & Org, or Accounting	_____	_____	3 s.h.

2. Departmental Core Requirements (9 hrs)

_____	Operations Management 3 s.h. 6K:292 Supply Chain Management Other operations management course departmental approval	_____	_____	3 s.h.
_____	Information Systems 3 s.h. 6K:272 Advanced Database Analysis Other MIS course with departmental approval	_____	_____	3 s.h.
_____	Quantitative Methods 3 s.h. 6K:286 Linear Programming Other quant course with departmental approval	_____	_____	3 s.h.

Research Methodology (12 hrs):

22S:153	Mathematical Statistics I	_____	_____	3 s.h.
22S:154	Mathematical Statistics II	_____	_____	3 s.h.

Choose two of the following courses:

6E:203	Microeconomics I	_____	_____	3 s.h.
22M:174	Topics on Continuous Optimization	_____	_____	3 s.h.
22S:195	Applied Stochastic Process I	_____	_____	3 s.h.
22S:196	Applied Stochastic Process II	_____	_____	3 s.h.
22S:158	Experimental Design & Anal	_____	_____	3 s.h.
22S:256	Applied Multivariate Analysis	_____	_____	3 s.h.
22C:231	Design & Analysis of Algorithms	_____	_____	3 s.h.

3. Major Area of Study (12-15 hrs) _____

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Written Major Qual Exam Date: _____

PHD PLAN OF STUDY CHECKLIST (continued)

Last Name _____ *First Name* _____ *Advisor* _____

4. Minor Area of Study (9-12 hrs) _____

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

5. Electives (6 hours)

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

6. Dissertation (15 hrs) 6K:290 Thesis

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

7. Dissertation Proposal Date: _____

8. Final Exam Date: _____

Committee: _____

9. PROGRAM APPROVAL

(Academic Advisor)

(Date)

Major Written Qualifying Exam Procedures

- 1) Schedule a date for your exam with the Director of Graduate Studies. Exams are typically given near the beginning of a semester (August or January). Every attempt is made to coordinate the date of all students taking the exam in a given year.
- 2) Determine, in consultation with your advisor, the list of five courses that will serve as your Major.
- 3) Contact your instructor from each of the five courses, and get their informal agreement to write and grade two questions for the exam.
- 4) **At least six weeks before the exam**, send the department secretary the following information:
 - a) The numbers and names of the five courses
 - b) The name, campus address, and email address of each instructor
 - c) The semester and year in which you took the course.

Comprehensive Examination / Proposal Defense Procedures

All required course work must be completed before the student can take the comprehensive examination/proposal defense.

1. Obtain the following materials from the Management Sciences Office:

- Doctoral Plan of Study Summary Sheet
- Copy of your latest transcript
- Copy of your current registration

2. Meet with your advisor to fill out the Plan of Study Summary Sheet.

When completing the form, please note that your department is “Business Administration” (not MIS, OM, etc).

Your advisor should mark a line through the courses on your transcript and current registration that are not being counted towards your degree.

3. Return the Plan of Study Summary Sheet to Renea Jay at least three weeks prior to the date of your comprehensive exam.

Have Barb Carr or Renea Jay reserve a room for a two-hour time slot.

Management Sciences Graduate Student Travel Funds Request Form

Name _____

Date _____

Conference _____

Location _____

Dates _____

Participation (circle at least one):

Making a presentation

Showing a poster

Title of presentation and/or poster:

Other funds applied for (e.g., grant funds, Graduate College travel funds):

Departmental Use Only

DEO approval signature _____

Date _____

Amount allocated _____

MEMORANDUM

April 20, 2005

TO: PhD Students
FROM: Nick Street and Kurt Anstreicher
SUBJECT: Summer Support Policy for Graduate Students

SUMMER MERIT FELLOWSHIPS:

Since Fellowships are non-service awards to qualified students, each awardee must agree in writing that the Award is to be the only remunerative summer support.

Qualifying Procedure

Awards will be based on meeting the following criteria:

- (1) a one-page progress report on his/her research and ideas for summer research
- (2) the student's latest Study Plan
- (3) student must be enrolled (2 hours) in the summer
- (4) you must be enrolled in the fall semester following this award in order to qualify
- (5) graduate students who are in their 5th year and have not defended their dissertation proposal are not eligible for a summer merit award
- (6) a faculty research advisor must approve the student's research plan prior to submission

DEPARTMENTAL RESEARCH ASSISTANT MANAGEMENT SCIENCES DEPARTMENT

Beginning with the fall semester 2005, the Management Sciences Department will support a single research assistant position. This position will provide tuition plus half-time (50%) salary support for one student each semester (fall and spring), and will be awarded competitively each semester.

In order to be eligible for this position, a student must meet the following requirements:

1. full-time or equivalent (registration during the semester of the award), resident Ph.D. student in the Department of Management Sciences,
2. in at least his/her fourth semester of full-time enrollment, and
3. has successfully completed the preliminary exam.

Priority will be given to students who are in their third year or later, and have not previously received an award.

Students who wish to be considered for this position will submit a research proposal of no more than five pages to the department. This proposal will include brief summaries of the following points:

- a description and justification of the problem,
- a summary of previous research performed by the student,
- a statement of the proposed work, and
- a description of expected deliverables / results.

The proposal must be approved by a supervisor from the department faculty (preferably but not necessarily the student's thesis advisor) before it will be considered. Proposals will be judged by the department's Ph.D. Committee. The award may be split into two quarter-time positions at the department's discretion.

During the period of the award, the student will be assigned to the supervisor as a research assistant, and will therefore be responsible for at least 20 hours per week of demonstrable work. At the end of the appointment, the student will be required to submit a one-page summary of the work completed. Fellowship recipients who fail to satisfactorily complete either the research or the report will be ineligible for future awards.