



2016 - 2017

# PhD HANDBOOK



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## ACADEMIC CALENDAR FOR 2016-17

University calendars are official for all School of Management full-time students.

The Office of the Registrar maintains [Official Academic and Student Calendars](#) that provide a month-by-month listing of critical academic and financial dates. Students should refer to the Academic Calendar for all dates relevant to semester start/end dates and holidays. Student calendars provide a month-by-month schedule of all academic and financial critical dates. Both calendars should be followed carefully for critical information. **Official University dates are binding.**

The School of Management maintains an [event calendar](#) that lists numerous school events for multiple audiences and normally provides an option to make a reservation for a given event.

The university also maintains a [general university events calendar](#) that may be of interest and includes a number of opportunities not listed on the School of Management calendar.

### STATE UNIVERSITY POLICY REGARDING STUDENT OBSERVANCE OF RELIGIOUS HOLY DAYS

“On those religious holy days when members of a faith typically observe the expectation of church or synagogue that they be absent from school or work, campuses will avoid the scheduling of such events as registration, the first day of classes, or student convocations and individual students will be excused from class without penalty if expressly requested.” (From SUNY Policy Manual, 1975, Section No. 091.3.) UNIVERSITY AT BUFFALO PROCEDURE ADDS: “If such a requested absence results in a student’s inability to fulfill an academic requirement of the course on that particular day, then instructors should provide an opportunity for the student to make up the requirement without penalty.”

## Introduction

The purpose of this handbook is to acquaint doctoral students with the rules, policies and procedures governing the PhD Program at the School of Management. The Graduate School of the University at Buffalo grants the PhD degree and establishes minimum standards for all graduate students in the University. These standards are described in the Policy Library (<http://grad.buffalo.edu/study/progress/policylibrary.html>). Within these standards, individual academic units establish more detailed requirements and procedures for completion of their graduate programs. Academic questions which are not addressed in this handbook should be directed to your academic advisor. Policy questions can be directed to the Graduate Programs Office, 203 Alfiero Center, North Campus, phone: 716-645-3204.

Overall policy for the PhD Program is set by the PhD Program Committee, consisting of the chairman, a student representative, and six faculty members who serve as advisors for the various subject areas in the program. Incoming students should contact their respective advisors as early as possible to discuss their individual programs and course requirements. A permanent record is maintained by the Graduate Programs Office, 203 Alfiero.

## PhD Program Directory

Dr. Darren Treadway  
PhD Program Chair  
280B Jacobs Management Center  
Phone: 645-3244

Dr. Katherine Ferguson  
Associate Dean for Academic Programs  
160 Jacobs Management Center  
Phone: 645-3222

Jaimie L. Falzarano  
Senior Associate Director Graduate Programs  
203 Alfiero Center  
Phone: 645-3204

### **Faculty Advisors are available in each of the following areas:**

Accounting  
Dr. William Kross  
[wkross@buffalo.edu](mailto:wkross@buffalo.edu)

Finance  
Dr. Sahn-Wook Huh  
[swhuh@buffalo.edu](mailto:swhuh@buffalo.edu)

Management Science and Systems  
Dr. Rajiv Kishore  
[rkishore@buffalo.edu](mailto:rkishore@buffalo.edu)

Marketing  
Ram Bezawada  
[bezawada@buffalo.edu](mailto:bezawada@buffalo.edu)

Operations Management and Strategy  
Dr. Yong Li  
[yl67@buffalo.edu](mailto:yl67@buffalo.edu)

Organization and Human Resources  
Dr. Emily Grijalva  
[eigrijal@buffalo.edu](mailto:eigrijal@buffalo.edu)

## Chapter I – PhD Management Program Overview of Requirements

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### Major Fields

Each student is required to select a major field within the School of Management. The dissertation will be centered in this field. At present, a concentration may be selected from:

Accounting  
Finance  
Management Science and Systems  
Marketing  
Operations Management and Strategy  
Organization and Human Resources

Courses in these fields are located within the six departments of the School. These departments are Accounting and Law, Finance, Management Science and Systems, Marketing, Operations Management and Strategy, and Organization and Human Resources. The Managerial Economics program is offered jointly by the Department of Economics and the Department of Finance.

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### Related Field

#### Minor Area of Concentration

Students minor in one substantive area and thereby take a number of courses inside or outside the School. The content of all official minors is listed at the end of Chapter II. Minors available within the School include Accounting, Finance, Management Science and Systems, Managerial Economics, Marketing, Operations Management and Strategy, and Organization and Human Resources. Minors available outside the School include Computer Science, Cognitive Psychology, Economics, Industrial Engineering, Organizational Communication, Social Psychology, Sociology and Statistics. The advisor of the students' major area should approve the minor. Special minors are also available.

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### PhD Core Requirements

#### Calculus Prerequisite

A two-semester introductory calculus sequence covering topics in differential calculus, integral calculus, simple differential equations and basic matrix algebra is required.

#### Core

Students take two statistics courses and two research methodology courses relevant to their major and **approved by the advisor**. These courses are usually offered by a department outside the School except for MGO 615 and MGO 616 - Econometric Methods and Managerial Applications I and II.

Statistics courses include Mathematical Probability (STAT 501), Mathematical Statistics (STAT 502), Econometrics (ECON 613 and 614), Statistical Inference II (CEP 523), Statistical Methods in Sociology (SOC 607 and 608).

Research methods include Mathematics for Economists (ECON 611, 612), Applied Stochastic Processes (IE 576), Marketing Research (MGM 667), Research Methods in Sociology (SOC 606), Education and Psychological Seminar (CEP 509), Research Methods in Social Psychology (PSY 704) and methods of Field Research in Social Psychology (PSY 708).

MGG 700 - Introduction to Research Methods (should be taken during the first year)

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### **First-Year Paper**

All students should prepare a literature survey approximately 15 pages in length on the topic that they wish to start working on for their second-year paper. This will be evaluated by a committee at the beginning of the spring semester of the second-year and no later than the end of the spring semester of the second year. All students are required to pass the evaluation.

### **Second-Year Paper**

All students must begin a research paper no later than one year after entering the PhD Program. The paper is to be evaluated by a committee no later than two and one-half years after the student enters the PhD Program. The committee shall consist of two full-time faculty members selected by the student in consultation with the PhD advisor. At least one committee member must be a member of the graduate faculty. Failure to produce a satisfactory paper as determined by the committee will constitute unsatisfactory performance and will necessitate a review of the student by the PhD Program Committee. The student must produce a satisfactory paper before the major qualifying exam is taken. Students are also required to present this paper at a departmental seminar.

The purpose of the paper is to provide an exposure to the *full* range of activities required to successfully conduct independent research. The research paper will have all of the characteristics of a publishable paper except that the overall *quality* need not be sufficient to merit publication. For example, the normal empirical paper will have *all* of the elements of a typical empirical article appearing in leading journals in the student's area. Similarly, a theoretical paper should have a broad enough range of development to warrant comparison with similar work published in the area.

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### **Qualifying Examinations (Comprehensive Exams)**

**Doctoral candidates must take a written qualifying examination in their major field within three (3) years of entry into the program.** The comprehensive examination in the major area may be taken before completing all courses in the minor. Examinations in minor areas are determined by the policy in that area. **All examinations must be completed successfully before the student applies for "Application to Candidacy."** Normally, these examinations are taken immediately after completing coursework.

Arrangements for taking an examination will be made through the appropriate PhD advisor by the student. If an examination is failed, it may be retaken. Only in unusual cases, and upon written petition to the PhD Program Committee of the School of Management, may the examination be taken more than twice. If such approval is not granted, the student will be terminated from the program. These examinations will be under the control of the department involved. Upon successful completion of each comprehensive, the department will notify the Graduate Programs Office, with a copy to the student.

### **Dissertation**

All students are required to complete a dissertation that is described in Chapter III

## Teaching Skills

### 1. Teaching Assistant Workshop

All PhD students are required to complete the Teaching Assistant Workshop offered by the University (currently it is offered by the Teaching and Learning Center (TLC)).

### 2. Before a PhD Student Teaches a Course

The student should work with a professor in his/her department as a Teaching Assistant in a practicum before teaching that course. The practicum will expose the student to all aspects of teaching, including preparation of class materials, selection of appropriate in-class activities/exercises, preparation and grading of exams, leading class discussions and actually teaching some classes while being observed by his/her professor. Each student enrolls for one credit (pass/fail) in the teaching practicum course before teaching.

### 3. The Mentoring Process for Teaching

Phase 1: Assign Mentor and Identify Course

The department Chair in concert with the PhD Committee will assign a mentor to a PhD student. This should be done at least one semester prior to the student's first teaching assignment. The mentor, the Department Chair and the PhD student will also work together to identify a course for the PhD student to teach.

Phase 2: Teaching Engagement

The PhD student will begin to prepare for the teaching assignment. This should include the following:

- Attends most, if not all, class sessions of one section taught by the mentor.
- The mentor *may provide* access to all course materials including the textbook (examination copy), lecture notes, PowerPoint slides, class handouts, assignments and examinations.
- The PhD student is encouraged to develop a syllabus, lecture notes, assignments and examinations as the semester progresses.
- The PhD student, in consultation with the mentor, will teach the mentor's course for *one or two weeks* during the semester. The PhD student and mentor will hold several meetings prior to the two-week assignment to discuss the student's proposed teaching strategy. The faculty mentor will meet with the PhD student after each class to discuss class presentation and content. The PhD student will prepare examination questions for a midterm or final exam related to the material covered during the weeks.

Phase 3: Evaluation

Immediately after the PhD student has completed the teaching assignment, the mentor will administer an anonymous survey to the students in the course. This survey will be similar to the UBCATS instrument and will also attempt to elicit specific feedback concerning the PhD student's performance and areas where teaching might be improved. The mentor will send a memo to the Department Chair and the PhD Committee summarizing the PhD student's performance (e.g. comparison with SOM means and overall student reaction).

### 4. SPEAK Test Proficiency Requirement

The School of Management requires all incoming international PhD students to have their language skills evaluated prior to the beginning of their first semester in the program.

(1) A student with a SPEAK score at or below 45 will be strongly recommended to participate in the American English Pronunciation\* course during the fall semester of Year 1. Subject to availability the student is recommended to take ESL 411 during the fall or ESL 412 during the spring semester. Finally the student should take ESL 512 during their second year in the program. In addition to these courses, students are strongly recommended to participate in ELI's Chat room.

The student will be required to retake the SPEAK test in December of Year 1. If they have not obtained the required score of 55 they must retake it until the requirement is fulfilled or they have met the teaching certification interview requirement. The student is not certified to teach until they have reached a 55 on SPEAK or performed a teaching certification interview and passed.

(2) A student with a SPEAK score of 50 will be strongly recommended to take ESL 512. A teaching certification interview will be required for all PhD students in this category before they will be approved to teach.

(3) A student with a SPEAK score above 55 will be certified to teach without reservation.

\* With permission of a PhD advisor a student with a 45 on the SPEAK may request the teaching certification interview

\* If the course requires extraordinary tuition (e.g., the \$185 fee for the American English Pronunciation course), the School will underwrite the fee for the *first* session of a required remedial course.

\* Failure to take recommended courses during their first semester in the program or failure to perform satisfactorily in the recommended course will result in an unsatisfactory performance evaluation.

## **5. Teaching Requirement**

All PhD students are required to teach at least one course that is a part of the School of Management curriculum before degree conferral.

a) Students will sit in on a section of the first course that they are to teach prior to their teaching introduction.

b) Courses taught by PhD students will be recorded on their permanent record maintained by the School of Management.

c) Copies of Course Evaluations will be directed to area coordinators for each course taught by a PhD student.

d) A written evaluation of teaching performance will be provided to the area coordinator by either the course coordinator or the department chair for each course taught by a PhD student. (It is recommended that course coordinators review Course Evaluations and visit a class session).

e) As a part of the annual review, the area coordinator will summarize information relating to the student's experience as an instructor and evaluate the student's overall teaching progress.

## **6. COURSE EVALUATIONS**

The PhD Committee will review Course Evaluations, written teaching evaluations by course coordinators or the department chairs, and area coordinators. Where the committee believes that a student's performance as an instructor is substandard, the committee may seek additional input (discussions with the individual, discussions with the individual's students, class visitations).

When the committee finds that an individual is not making satisfactory progress as an instructor, they may recommend:

- 1) that the PhD Committee make an evaluation of unsatisfactory progress;
- 2) that the PhD Committee deny opportunities to teach for compensation;
- 3) that the PhD Committee suspend financial support;
- 4) that the committee review for termination.



## Chapter II – Major and Minor Requirements

### Accounting

Accounting is a field that deals with developing information which is useful to managers, investors, and other interested parties in evaluating an entity's financial position. At the PhD level, this involves directly measuring how users interact with accounting numbers as well as providing theories for accounting practice in the areas of Financial Accounting and Managerial Accounting.

### Prerequisites

An appropriate background in accounting, finance, and mathematics is assumed. Students may take MBA-level courses as necessary to fulfill any coursework deficiencies.

### Major Requirements

The students majoring in Accounting take the following courses in addition to PhD core requirements.

#### *Required Accounting Courses and Seminars*

MGF 631 Corporate Financial Management  
MGF 633 Investment Management  
MGA 617 Seminar in Managerial Accounting  
MGA 618 Seminar in Financial Accounting

The following required courses also satisfy the core requirements in methodology:

MGF 742 Information and Capital Markets  
MGA 743 Research Methodology  
MGA 795 Doctoral Seminar in Financial Accounting  
MGA 796 Topics in Accounting Research

### Economics Minor

The following courses satisfy the core requirements in statistics (two courses) as well as the requirements for a minor in Economics (a grade point average of 3.0 is required in minor courses).

ECON 611 Mathematics for Economists I  
ECON 613 Introduction to Econometric Theory  
ECON 665 Microeconomic Theory I

Plus one course from the following:

ECON 614 Econometric Theory II  
ECON 712 Econometrics: Time Series Analysis  
ECON 731 Optimal Contract Theory  
ECON 666 Microeconomic Theory II  
MGO 797 Accounting workshops are required for one credit-hour.

### Independent Study and Supervised Research

Independent study can be useful to provide students with a detailed exposure to specialized topics in accounting. They can be used as substitutes for MGA 795 and 796 if either or both are not offered. Students are encouraged to undertake supervised research with faculty members with the objective of developing a publishable research paper.

### Additional Area

With prior approval of the field advisor, a student must take three courses in an area of interest, such as Finance, Management Science, or Management Systems.

### **Second-year Paper**

The required research paper (as noted in Chapter 1) must be completed by the end of the first semester of the third year of study.

### **Comprehensive Examinations**

Accounting majors must successfully pass the comprehensive examination in Accounting. Students are expected to take the exam during their third year of study.

### **Typical Minors for Accounting Majors**

Economics or Finance

### **Requirements for a Minor in Accounting**

Students desiring an Accounting minor are expected to have an appropriate introductory-level background in financial and management accounting.<sup>1</sup>

Minor requirements may be satisfied by taking either the financial or managerial track. Course requirements are:

#### *Managerial Track:*

MGA 609 Management Accounting  
MGA 617 Seminar in Management Accounting  
MGA 795<sup>2</sup> Doctoral Seminar

#### *Financial Track:*

MGA 606 Intermediate Financial Reporting  
MGA 618 Seminar in Financial Accounting  
MGA 796<sup>2</sup> Doctoral Seminar

No minor exam is required if the student achieves a 3.5 grade point average in minor courses.

<sup>1</sup>MGA 604 or equivalent.

<sup>2</sup>Substitutes may be used for doctoral seminar including independent study and supervised research.

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## **Finance**

The Ph.D. Program in Finance provides effective and efficient education and training of students that will enable them to successfully pursue academic or professional careers associated with the financial management of corporations and financial institutions. Using the economics of uncertainty as applied to financial decisions and a wide range of statistical tools, researchers in finance study three basic areas. First, researchers interested in investments study the 'efficiency' of the capital market, the pricing of financial assets, the management of portfolios, and the microstructures of the markets where assets trade. Second, researchers interested in corporate finance study capital structures, the market for corporate control, and the financial management of corporate assets. Finally, researchers interested in financial institutions study issues related to the management of such institutions. Majors in finance are expected to master the field sufficiently to conduct and publish research during their careers. Minors in finance are expected to understand the published finance research, and should seek to incorporate their knowledge in finance into their major area of study.

### **Major Requirements**

#### *Required Courses and Seminars*

MGF 631 Corporate Financial Management  
MGF 633 Investment Management  
MGF 636 Complex Financial Instruments  
MGF 641 Financial Policies and Strategy

MGF 740 Theory of Finance  
MGF 741 Corporate Finance  
MGF 742 Information and Capital Markets  
MGF 743 Research Methodology

Any of the first four courses may be waived if the student has had an equivalent prior course.

### **Elective Courses**

In addition, the student may elect to take:

MGA 632 Financial Statement Analysis  
MGF 643 Value Creation  
MGF 661 Management of Financial Institutions  
MGF 685 International Financial Management

### **Independent Study and Supervised Research**

Students are encouraged to develop their knowledge in specialized topics through independent study and supervised research with the finance faculty. Such efforts may be undertaken with the objective of publishing a paper.

### **Economics Minor**

The following courses must be taken in the Economics Department in lieu of the core courses in statistics (two courses), economics (two courses), and research methodology (one course {the other methodology course requirement is satisfied by MGF 740}):

ECON 609 Macroeconomic Theory I  
ECON 611 Mathematics for Economists I  
ECON 612 Mathematics for Economists II  
ECON 613 Introduction to Econometric Theory  
ECON 665 Microeconomic Theory I

In addition, at least one of the following courses must be taken for the minor:

ECON 614 Econometric Theory II  
ECON 615 Econometric Theory III  
ECON 666 Microeconomic Theory II  
ECON 712 Econometrics: Time Series Analysis  
ECON 721 Industrial Organization I  
ECON 731 Optimal Contract Theory

### **Recommended Courses**

Each student is encouraged to take additional courses which develop their research skills depending on the student's specialization. Further training in the following areas is very desirable:

- a) Economics (see list above)
- b) Statistics (e.g., STAT 521, 522)
- c) Management Science
- d) Mathematics (e.g., MATH 301, MATH 331- 332)
- e) Research courses in the School of Management (e.g., MGA 617, MGA 618)

The student must maintain a grade point average of 3.0 (B) to fulfill the requirement for a minor in Economics. However, we expect the student to achieve an average higher than this minimum.

### **Workshop Participation**

Two semesters of workshop courses (MGO 795, 796) must be taken. The workshop is designed to expose the student to current research.

### **Second-year Paper**

By the end of the fall semester of the third year, the student is required to complete an original research paper which is acceptable to an evaluation committee of three faculty members. The paper should demonstrate that the student has the research potential to complete an acceptable dissertation (and is

not necessarily of publishable quality). Students should choose their evaluation committee as early as possible.

### **Comprehensive Examination**

By the end of the summer after all finance seminars are completed (generally at the end of the second year), the student must take a written qualifying exam. The questions will be primarily based on material covered in the finance Ph.D. seminars. The comprehensive exam may be taken only twice.

### **Annual Review**

The finance faculty will conduct an annual review and interview of each student in the program in the spring semester. The purpose is two-fold: to determine whether the student is making adequate progress toward the degree, and to determine where the student's interests are developing. The student's progress will be based on: (a) course grades; (b) comprehensive exam grade; (c) workshop participation; (d) performance as an RA (Resident Assistant) or TA (Teaching Assistant); (e) dissertation development; and (f) overall progress toward the degree.

### **Typical Minor for Finance Majors**

Economics

### **Requirements for a Minor in Finance**

#### *Required Courses*

MGF 633 Investment Management  
MGF 636 Complex Financial Instruments  
MGF 641 Financial Policies and Strategy  
MGF 740 Theory of Finance

And two of:

MGF 636 Complex Financial Instruments  
MGF 741 Corporate Finance  
MGF 742 Information and Capital Markets  
MGF 743 Research Methodology

Any of the 600-level courses may be waived if the student has had an equivalent prior course.

### **Electives**

Any of the following courses may also be taken, but are not required:

MGF 642 Financial Planning and Evaluation  
MGF 643 Value Creation  
MGF 661 Management of Financial Institutions  
MGF 685 International Financial Management  
MGF 741 Corporate Finance  
MGF 742 Information and Capital Markets  
MGF 743 Research Methodology

### **Independent Study**

Independent study may also be used to help a student develop specialized knowledge in finance.

### **Minor Exam**

Students are required to take the morning segment of the finance comprehensive exam. The exam may be taken only twice. No minor exam is required if the student achieves a 3.5 GPA in the minor courses.

## Management Science and Systems

The Management Science and Systems major has two tracks. The Management Science track covers the areas of mathematical programming, multi-criteria decision-making, design science, behavioral science, statistical methodology and application, and decision support systems. The track emphasizes the use of mathematical, statistical, and economic techniques to model complex management and management-related problems.

The Management Systems track covers the areas of management information systems, design science, behavioral science, decision support systems, information assurance, e-commerce, global information technology management. The concentration emphasizes the use of systems analysis techniques, quantitative techniques, simulation, model and theory building, statistical analysis, and other analytic methods in the structuring and resolution of management problems related to the development, use, and impacts of information technology and information systems in organizational, individual, and societal domains.

The tracks have the following concentrations:

A. Management Science Track

1. Mathematical Programming and Decision Making
2. Statistical Methods and Applications (including Forecasting)

B. Management Systems Track

1. Information Assurance
2. Management Information Systems
3. Global IT Management

### Prerequisites

Student must develop or have competence in accounting, economics, finance, marketing, organizational behavior/organizational theory, and strategic management equivalent to one first-year MBA course in each area before graduating from the Ph.D. Program.

### Major Requirements:

#### Management Science Track (see concentrations A1 and A2 above)

ECON 613\*\* Introduction to Econometrics  
ECON 614\*\* Econometric Applications and Methods  
IE 576\*\* Applied Stochastic Processes  
MGQ 614 Advanced Probability and Statistics or IE575  
MGQ 616 Stochastic Models of Management Science or IE 572  
MGS 785 Behavioral Information Science  
MGS 786 Design Science  
MGS 787 Information Assurance  
MGS 788 Globally Distributed Work  
MGQ 797 Doctoral Seminar (Fall: must register for two consecutive years)  
MGS 797 Doctoral Seminar (Spring: must register for two consecutive years)

Plus four of the following:

MGS 616 Stochastic Models of Management Science (see Note 1)  
IE 573 Discrete Optimization  
IE 575 Stochastic Methods  
IE 551 Simulation and Stochastic Models  
IE 675 Game Theory  
MGS 650 Information Assurance  
MGS 659 E-Commerce

**Management Systems Track (see concentration B1, B2, and B3 above)**

ECON 613 Introduction to Econometrics\*\*

STAT 503 Regression and Design of Experiments (or ECON 614) \*\*

MGS 650 Information Assurance

MGS 659 E-Commerce

MGS 785 Behavioral Information Science

MGS 786 Design Science

MGS 787 Information Assurance

MGS 788 Globally Distributed Work

MGQ 797 Doctoral Seminar (Fall: must register for two consecutive years)

MGS 797 Doctoral Seminar (Spring: must register for two consecutive years)

Plus six of the following:

MGS 613 Management Information Systems I

MGS 614 Management Information Systems II

MGS 616 Decision Support Systems

MGS 620 Management of Globally Distributed Work

MGS 650 Information Assurance

MGS 651 Managing Computer Networks

MGS 655 Distributed Computing

MGS 659 E-Commerce

GEO 531 International Business and World Trade\*\*

ECO 721 Industrial Organization II

\*\* Courses satisfying statistics and methodology requirements. Permission of the PhD advisor is required for substitutions. Possible substitutions: MGO 615 and MGO 616 - Econometric Methods and Managerial Applications I and II

Notes:

(1) Independent Studies with faculty in the area may be used in lieu of those required courses which are not offered regularly. Any of the above courses can be replaced by other courses if competence in the above course area can be demonstrated through prior coursework and/or research experience.

Permission of the PhD advisor is required.

(2) MGQ 797, Doctoral Seminar (Fall) carries one credit hour per semester.

(3) MGS 797, Doctoral Seminar (Spring) also carries one credit hour per semester. A doctoral student is required to register for MGQ 797 or MGS 797 for at least four consecutive semesters.

**First-Year Paper**

See details on Page 11.

**Second-Year Paper**

The research paper must be completed by the end of the first semester of the third year.

**Comprehensive Exam**

All students are required to demonstrate competence in their respective fields by successfully completing a comprehensive written examination. The examination is taken following completion of the course requirements which include three of the following four doctoral research courses MGS 785, MGS 786, MGS 787 and MGS 788. The examination will be over materials covered in the courses listed together along with the current departmental reading lists. Please note that all four of the doctoral research courses have to be taken prior to graduation.

**PhD Proposal**

The PhD *proposal* is the penultimate milestone to successful graduation. The student must present to the faculty sufficient evidence that the dissertation can be completed successfully before the proposal is approved. It may be appropriate for the student, therefore, to include some sample data in the proposal to

show how the data will be used in the dissertation. However, the student should not be required to complete all data collection prior to making the proposal.

### **Typical Minors for MSS PhD Students**

Cognitive Science, Computer Science, Industrial Engineering, Statistics, Organization and Human Resources, and Operations Management and Strategy

### **Requirements for a Minor in MSS**

#### **All Minors:**

MGS 613 Management Information Systems I  
MGS 614 Management Information Systems II

#### **Management Systems Track**

MGS 616 Decision Support Systems  
MGS 620 Management of Globally Distributed Work  
Competence in areas of accounting, finance, and marketing are prerequisite requirements for certain of these courses in Management Systems. Competence can be established by taking graduate courses in these areas. Independent studies may be used in lieu of any of the above courses which are not offered regularly.

#### **Management Science Track**

MGQ 614 Advanced Probability and Statistics or equivalent  
MGQ 616 Stochastic Models of Management Science or IE 575 Stochastic Methods

*Plus one of the following:*

MGS 616 Decision Support Systems  
MGS 650 Information Assurance  
MGS 659 E-Commerce

Independent studies may be used in lieu of any of the above courses which are not offered regularly. A comprehensive exam is required for all minors.

### **Managerial Economics (Joint Program with Economics)**

The Ph.D. Program in Managerial Economics is offered as a joint program of the School of Management's Department of Finance and Managerial Economics and the Department of Economics in the Faculty of Social Sciences. Students can be accepted into the program by either unit, and all students take a set of courses that form the common core of the joint program. Then the student must choose one of the units for continued study, and must then complete all of the requirements of the degree specified by that unit. (Information about program requirements specified by the Department of Economics can be obtained by contacting that department.)

The program in Managerial Economics offers a strong foundation in economic theory leading to further study and research in economics, with emphasis on the more applied areas of the field. The faculty in both units represents a wide range of specialties. For students choosing to complete their studies within the School of Management, the School offers them opportunities to combine graduate studies in economics with specialization in other fields such as finance, accounting and marketing. (Because of the flexibility of this concentration, prospective majors and minors are urged to consult as early as possible with the department's advisor to plan their program.)

#### **Major Requirements**

The student must take the following courses, which form the common core of the joint program in Managerial Economics:

ECON 665 Microeconomic Theory I  
ECON 666 Microeconomic Theory II  
ECON 609 Macroeconomic Theory I  
ECON 610 Macroeconomic Theory II  
ECON 611 Math for Economists I  
ECON 612 Math for Economists II  
ECON 613 Econometric Theory I  
ECON 614 Econometric Theory II

If the student then chooses to follow the degree program in the School of Management, in addition to the core listed above the student must take four advanced seminars in areas related to economic policy. These can be taken either in the School of Management or in other departments in the University (e.g., Economics or Statistics). These seminars must be approved in advance by the Managerial Economics PhD advisor in the School of Management, and must not be used to satisfy requirements for another major or minor. Waiver of any of the required core courses is possible if equivalent work has been done in a previous course.

### **Other Requirements**

Other requirements for the degree include the completion of a research paper, passing a comprehensive exam, requirements for teaching, and completion of a dissertation. Details pertaining to these requirements are given in other chapters of the handbook.

### **Minor Requirements**

A student minoring in Managerial Economics must take at least two courses in the area beyond the Ph.D. core requirements. In addition, two advanced seminars are required, as described under the major requirements and subject to prior approval by the Ph.D. advisor for Managerial Economics. Students must earn a grade "B" or better in each of the courses listed above to satisfy the requirements for the minor.

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## **Marketing**

The Ph.D. Program in marketing deals with addressing managerially relevant issues such as the study of factors affecting profitability of firms, improving decision making, and the impact of consumer behavior. Some examples of the types of questions of interest include: What is the optimal price to charge for our product? How does advertising affect sales? What is the most effective way to control the flow of products between the firm, its suppliers and its customers? How should a product be positioned vis-à-vis its competitors? It often uses economic theory to build normative models and teaches students how to create new knowledge helpful to marketing managers. As such, it is designed to provide training in the behavioral and quantitative domains, necessary for a successful research and teaching career.

### **Major Requirements**

Beyond a basic graduate course in marketing (MGM 625 or equivalent), all students typically should take:

MGM 795/796 Special Topics/Seminars in Marketing (every semester until student reaches ABD status)  
MGM 667 Marketing Research  
MGM 651 Consumer Behavior

An additional three courses must be selected from:

MGM 647 Supervised Research  
MGM 656 Design, Manufacturing and Marketing of New Products  
MGM 657 Distribution Strategy



MGM 659 Market Planning  
MGM670 Advertising and Promotions  
MGM671 Data Analysis for Marketing Decisions  
MGM 683 International Marketing

The major field core research requirement in Marketing is satisfied by:

MGM 647 Supervised Research

*plus*

MGM 667 Marketing Research

*or*

MGM 795/796 Special Topics/Seminars in Marketing

Unless permission has been granted by the Marketing PhD Program advisor, students are expected to take MGM 796 whenever it is offered, irrespective of whether their other course requirements have been met.

While choice of a minor depends on the student's areas of interest within marketing, it is to be chosen carefully upon consultation with the departmental PhD advisor and other members of the Marketing faculty. It is recommended that students wishing to develop background skills in the application of behavioral sciences to marketing problems take a minor in Social Psychology or Cognitive Psychology.

Students wishing to develop background skills in the analysis of management problems in marketing may wish to minor in Economics, Management Science, or Management Systems. Since skills in empirical analysis are important in marketing, these students will wish to pursue advanced training in statistics within these minors. For example, those minoring in Economics or Management Science should take one or more courses in econometrics while student minoring in Social or Cognitive Psychology should take, in consultation with their advisor, one or more courses in those relevant fields. Furthermore, students may be required to take at least one methods/statistics course from an alternate area.

### **First-Year Paper**

All students should prepare a literature survey approximately 15 pages in length on a topic of their interest. Though possible, it is not necessary for this to evolve into their second year paper or their thesis. The development of this survey paper can be guided and evaluated by any faculty member selected by the student in consultation with the PhD advisor, and will be presented to the department faculty by the beginning of the 3<sup>rd</sup> semester. All students are required to pass the evaluation.

### **Comprehensive Examinations**

Comprehensive examinations in Marketing will be offered during the first two weeks of June each year. Both majors and minors must take a general exam which will draw upon all of the various marketing subject areas and which requires integrative responses from the students. This general exam is a written exam which lasts for three hours. Majors in Marketing take an additional written exam, normally on the same day as the general exam, at the end of their 4<sup>th</sup> semester, which tests their knowledge of advanced areas of interest. Students not passing the exam must retake it the next time it is scheduled to be administered. Students failing the exam twice will be dismissed from the program.

### **Second-Year Paper**

All students must begin a research paper no later than one year after entering the PhD Program. The paper is to be presented at a departmental seminar and evaluated by a committee no later than the end of their 5<sup>th</sup> semester after the student enters the PhD Program. The committee shall consist of two full-

time faculty members selected by the student in consultation with the PhD advisor. At least one committee member must be a member of the graduate faculty. Failure to produce a satisfactory paper as determined by the committee will constitute unsatisfactory performance and will necessitate a review of the student by the PhD Program Committee. The purpose of the paper is to provide an exposure to the *full* range of activities required to successfully conduct independent research. The research paper will have all of the characteristics of a publishable paper except that the overall *quality* need not be sufficient to merit publication. For example, the normal empirical paper will have *all* of the elements of a typical empirical article appearing in leading journals in the student's area. Similarly, a theoretical paper should have a broad enough range of development to warrant comparison with similar work published in the area.

### **Dissertation Proposal**

Students are required to defend their dissertation proposals by the end of their 6<sup>th</sup> semester (or soon after).

(See Chapter 3 for more details).

### **Typical Minors for Marketing Majors**

Economics, Social Psychology, Cognitive Psychology

#### **Economics Minor**

The following courses satisfy the core requirements in statistics (two courses), economics (two courses), and research methodology (one course {the other methodology course requirement is satisfied by MGM 667}), as well as the requirements for a minor in Economics (a grade point average of 3.0 is required in minor courses).

ECON 611 Mathematics for Economists I

ECON 612 Mathematics for Economists II

ECON 613 Introduction to Econometric Theory

ECON 665 Microeconomic Theory I

Plus two courses from the following:

ECON 614 Econometric Theory II

ECON 666 Microeconomic Theory II

ECON 712 Econometrics: Time Series Analysis

ECON 713 Advanced Econometric Methods I

ECON 714 Advanced Econometric Methods II

ECON 721 Industrial Organization I

ECON 722 Industrial Organization II

#### **Social Psychology Minor**

The minor in Social Psychology consists of satisfactory completion (grade of "B" or better) of Psychology 680: Advanced Social Psychology and two courses from among those listed below.

PSY 610 Theoretical Approaches to Personality

PSY 616 Social Motivation

PSY 686 Small Group Processes

PSY 687 Theories and Strategies of Social Change

PSY 720 Social Influence Processes and Interpersonal Perception

PSY 725 Attitude Structure, Function, and Change

PSY 735 Psychology of Social Interaction

PSY 740 Theory and Research on Achievement Behaviors

PSY 761 Psychology of Social Conflict

PSY 765 Organizational Behavior  
PSY 821 Topical Seminar

### **Cognitive Psychology Minor**

A minor in Cognitive Psychology consists of Psychology 639: Cognitive Processes and two courses from the following list. However, only one of the courses marked with an asterisk may be used for the minor.

PSY 627 Perception  
PSY 635 Artificial Intelligence  
PSY 642 Psycholinguistics  
PSY 645 Perceptual and Cognitive Development\*  
PSY 718 Memory and Cognitive Development\*  
PSY 728 Memory  
PSY 747 Language Development\*

### **Requirements for a Minor in Marketing**

Beyond a basic graduate course in marketing (MGM 625 or equivalent), students minoring in Marketing should take:

MGM 651 Consumer Behavior  
MGM 663 Seminars in Marketing *or* 795 *or* 796  
MGM 667 Marketing Research

Students should also take a minimum of one additional graduate course in marketing, subject to departmental approval. This may come from the following list: MGM 647, MGM 656, MGM 657, MGM 659.

A comprehensive exam is also required.

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## **Operations Management and Strategy**

The Operations Management and Strategy (OMS) major has two tracks: 1) Supply Chain and Operations Management and 2) Strategy and Entrepreneurship. The objective of this Ph.D. program is to train high-quality researchers and educators, and other professionals who can advance and disseminate knowledge in the areas of supply chain, manufacturing and service operations, and business policy, strategy and entrepreneurship.

The Supply Chain and Operations Management track covers the two sub-areas of: a) supply chain management, and b) manufacturing and service operations management. Supply chain management emphasizes inter-firm communication, coordination, and integration of key business processes in the supply chain areas of purchasing and global supply management, production, inventory management, transportation, logistics, and application of inter-organizational information systems and technologies. Manufacturing and service operations management deal with design of manufacturing and service delivery systems, planning and control mechanisms such as manufacturing resource planning (MRP II), just-in-time (JIT) or lean manufacturing, application of enterprise resource planning (ERP) systems, internet technologies and e-commerce applications, and continuous improvement (kaizen) methodologies and Six Sigma. Emerging areas of interest include design and management of emergency response systems, service operations, management of extreme events and supply chain resilience in global business context.

Research based on both analytical modeling and empirical (survey-based, statistical) research is encouraged. Analytical modeling involves the use of methodologies such as mathematical programming, multi-criteria decision-making, statistical methods, queuing theory, simulation and econometric methods, for analysis, evaluation and optimization of supply chain, manufacturing and service operations. Empirical

research involves the use of secondary data, and collection of primary data through surveys, and analysis utilizing econometric models and statistical tools such as structural equation modeling, partial least squares methods, stochastic frontiers, etc.

Strategy and Entrepreneurship track addresses research questions relating to competitive advantage and performance of organizations in turbulent, global business contexts. The areas of investigation include competitive strategy and competitive positioning, diversification strategies, vertical integration, corporate governance, acquisitions and alliances, technology and innovation management, strategic decision-making processes, new venture creation and entrepreneurship, venture capital and crowdfunding and strategy implementation mechanisms. Both research based on analytical modeling and empirical (survey-based, econometric, statistical) research are encouraged.

### **Prerequisites**

Students must develop or have competence in accounting, finance, and marketing equivalent to one first-year MBA course in each area before graduating from the Ph.D. Program.

### **Major Requirements**

#### **Supply Chain and Operations Management Track**

MGO 615\*\*: Econometric Methods and Managerial Applications I (required)  
MGO 616\*\*: Econometric Methods and Managerial Applications II (required)  
MGO 630: Operations and Service Management  
MGO 631: Production and Inventory Planning  
MGO 633: Supply Chains and Global Operations  
MGO 636: Supply Chains: Design, Modeling and optimization  
MGO 637: Purchasing and Global Supply Management  
MGO 638: Logistics and Global Distribution Management  
MGO 795: Seminar in SCOM / Strategic Management  
MGO 796 Seminar in Strategy  
MGO 797 Doctoral Seminar (must register for two consecutive years)

#### **Plus three of the following: (subject to approval of Ph.D. program advisor)**

MGO 617: Service Operations and Extreme Events Management  
MGO 632: Strategic Quality Management  
MGO 634: Project Operations Management  
IE 504: Facilities Design  
IE 506: Computer Integrated Manufacturing  
IE 551: Simulation and Stochastic Models  
IE 572: Linear Programming\*\*  
IE 573: Discrete Optimization\*\*  
IE 575: Stochastic Methods\*\*  
IE 576: Applied Stochastic Processes\*\*  
IE 603: Location Theory  
IE 661: Scheduling Theory  
IE 662: Queuing Theory\*\*  
IE 671: Nonlinear Programming\*\*  
IE 674: Integer Programming\*\*  
IE 675: Game Theory\*\*  
IE 677: Network Optimization\*\*  
MGS 659: E-Commerce\*\*  
MGB 734: Organization Theory\*\*  
MGM 667: Marketing Research Methods\*\*  
MGG 619 (MGO 635): Business Forecasting\*\*  
STAT 501, 502: Mathematical Probability and Statistics\*\*  
ECON 611, 612: Mathematics for Economists\*\*  
ECON 613, 614: Econometrics \*\*

ECO 721: Industrial Organizations II  
SOC 578: Survey Research\*\*  
SOC 606: Research Methods in Sociology\*\*  
SOC 607, 608: Statistical Methods in Sociology\*\*  
Statistical Inference II (CEP 523)\*\*  
Education and Psychological Seminar (CEP 509)\*\*  
Structural Equation Modeling (PSY 614)\*\*  
Research Methods in Social Psychology (PSY 704)\*\*  
Field Research in Social Psychology (PSY 708)\*\*  
GEO 531 International Business and World Trade

### **Strategy and Entrepreneurship Track**

MGO 615\*\*: Econometric Methods and Managerial Applications I (required)  
MGO 616\*\*: Econometric Methods and Managerial Applications II (required)  
MGO 641: Strategic Management  
MGO 660: Intro to Entrepreneurship or MGO 665: Technology Entrepreneurship  
MGO 680: International Business Environment  
MGO 795: Seminar in SCOM / Strategic management  
MGO 630: Operations and Service Management  
MGO 633: Supply Chains and Global Operations  
MGO 796: Seminar in Strategy  
MGO 797: Doctoral Seminar (must register for two consecutive years)

Plus *three* of the following: (subject to approval of Ph.D. program advisor)

MGO 661: New Venture Development  
MGO 662: New Venture Launch  
MGG 621: Game Theory  
IE 675: Game Theory\*\*  
MGS 659: E-Commerce\*\*  
MGB 734: Organization Theory\*\*  
MGM 667: Marketing Research Methods\*\*  
MGG 619 (MGO 635): Business Forecasting\*\*  
STAT 501, 502: Mathematical Probability and Statistics\*\*  
ECON 611, 612: Mathematics for Economists\*\*  
ECON 613, 614: Econometrics \*\*  
ECO 721: Industrial Organizations II  
SOC 578: Survey Research\*\*  
SOC 606: Research Methods in Sociology\*\*  
SOC 607, 608: Statistical Methods in Sociology\*\*  
Statistical Inference II (CEP 523)\*\*  
Education and Psychological Seminar (CEP 509)\*\*  
Structural Equation Modeling (PSY 614)\*\*  
Research Methods in Social Psychology (PSY 704)\*\*  
Field Research in Social Psychology (PSY 708)\*\*  
GEO 531 International Business and World Trade

\*\* Courses satisfying statistics and methodology requirements.

#### Notes:

- (1) Independent Studies with faculty in the area may be used in lieu of those required courses which are not offered regularly. Any of the above courses can be replaced by other courses if competence in the above course area can be demonstrated through prior coursework and/or research experience. Permission of the PhD advisor is required.
- (2) MGO 797, Doctoral Seminar carries one credit hour per semester.

(3) PhD students in the Strategy and Entrepreneurship track are encouraged to take econometrics courses in the ECON department, but may take statistics courses with other departments subject to approval of PhD program advisor.

(4) GMAT is preferred for applicants in Strategy and Entrepreneurship

**First-Year paper:**

Must be completed by the end of the first semester of the second year.

**Second-Year Paper:**

The research paper must be completed by the end of the first semester of the third year.

**Comprehensive Exam**

All students are required to demonstrate competence in their respective fields by successfully completing a comprehensive written examination. The examination is taken following completion of the course requirements. The examination will be over materials covered in the courses listed together along with the current departmental reading lists.

**PhD Proposal and Dissertation**

The PhD *proposal* is the penultimate milestone to successful graduation. The student must present to the faculty sufficient evidence that the dissertation can be completed successfully before the proposal is approved. It may be appropriate for the student, therefore, to include some sample data in the proposal to show how the data will be used in the dissertation. However, the student should not be required to complete all data collection prior to making the proposal. The student must successfully defend his/her dissertation before the end of the seventh year in the program.

**Typical Minors for OMS PhD Students**

Industrial Engineering, Statistics, Finance, OB/HR, Marketing, Management Information Systems

**Requirements for a Minor in OMS**

**Supply Chain and Operations Management Track**

MGO 630: Operations and Service Management  
MGO 631: Production and Inventory Planning  
MGO 632: Strategic Quality Management  
MGO 633: Supply Chains and Global Operations  
MGO 634: Project Operations Management  
MGO 795: Seminar in SCOM / Strategic management  
MGO 796: Seminar in Strategy

**Strategy and Entrepreneurship Track**

MGO 641: Strategic Management  
MGO 665: Technology Entrepreneurship  
MGO 615: Econometric Methods and Managerial Applications I  
MGO 616: Econometric Methods and Managerial Applications II  
MGO 680: International Business Environment  
MGO 795: Seminar in SCOM / Strategic management  
MGO 796: Seminar in Strategy

Competence in areas of accounting, finance, and marketing are prerequisite requirements for certain of these courses. Competence can be established by taking graduate courses in these areas. Independent studies may be used in lieu of any of the above courses which are not offered regularly. A comprehensive exam is required for all minors.

## Organization and Human Resources

Within a consolidated program designed to develop strong research skills and a broad integrative exposure to the substantive fields of organizational science, the program in Organizational Behavior. Studies in OB focus on the behavior of individuals and groups in organizations; the relations between individuals and organizations; organizations themselves; and the behavioral/ social science foundations of these subjects. The area also has the Center for International Leadership, which offers research opportunities to PhD students.

### Major Requirements

#### 1. Two Topical Seminars (required of all OHR PhD students)

MGB 702 Topical Seminar in OB (I and II)

Two courses in research methods (PSY 704, PSY 708, MGB 733, or other suitable alternatives approved by the department).

One course in measurement (e.g., CEP 509 or an alternative approved by the department).

At least one substantive OB or HR seminar during each of the first three years of participation in the program.

Registration in a suitably designated one-credit course for supervised research during each of the first four semesters in the program. (Arrangements for these research experiences will be made by the student in consultation with the department's PhD advisors. The requirement may be waived for a student serving as research assistant to a faculty member of the department.)

#### 2. Concentration – Options

Each student's PhD Program is planned in consultation with a faculty advisor. The program plan is expected to include selection of a **major field** of study (OB), and a program for its accomplishment. The program must be submitted to the department for approval by the end of the second year of graduate study.

#### Second-Year Papers

Each student in the OHR PhD Program is required to complete a research paper. This is intended both to help develop students' research skills and to provide opportunities for faculty to evaluate their progress. It is assumed, too, that work on the paper will help define and deepen a student's interests and areas of concentration. It is the responsibility of the student to recruit a major area faculty member or members with whom to work on this project, and for dissertation research as well.

#### The "Research Paper"

This must be a report of empirical research in the form of a journal article. It is to be supervised by a two-person faculty committee; and, upon completion (not later than the end of the first semester of the third year of graduate study), it is to be the subject of a formal presentation by the student at a scheduled seminar open to all students and faculty. (This paper satisfies a requirement of the School of Management.)

#### Typical Minors for OHR PhD Students

Social Psychology, Sociology, or Organizational Communications

#### Requirements for a Minor in OHR

Students seeking a minor in OB or HR/IR are required to complete the following courses, with a GPA not lower than 3.5:

1. Two Topical Seminars - MGB 702 I and II

2. Two courses approved by the appropriate OHR PhD coordinator in either the Organization or the Human Resources area. (Neither MGI 601 nor MGB 601 will be accepted for credit toward a PhD minor in OHR.)
3. A comprehensive examination is not required for OHR minors.

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## **Student Evaluation**

### **Comprehensive Examination**

Students must pass an integrative written examination. The examination will require two full days and will be administered at the end of the spring semester following completion of the OHR Topical Seminar Series (MGI 701/MGB 702). The examination will be based on the content of these seminars and a supplemental reading list prepared by the OHR faculty. It will not be limited to specific materials presented in classes. Questions will be prepared and graded "Pass" or "Fail" by faculty participating in the seminars.

### **Annual Evaluation**

Individual students in the OHR PhD Program are evaluated annually by its faculty, ordinarily at the end of the spring semester. This evaluation includes review and assessment of each student's program, and considers not only the progress of the student in the program and compliance with University requirements, but also the student's development as an independent scholar. On the basis of its evaluation, the department may make specific recommendations to the student and/or SOM PhD Committee, including recommendations of termination in the program.

The most important of the annual evaluations will usually be those following the second and third years of a student's program. The second year evaluation determines whether or not the student is encouraged to continue in the program. The third year evaluation leads to a decision on whether or not the student is to be admitted to candidacy for the PhD degree. Students admitted to candidacy are expected to begin formal work on their doctoral dissertations promptly under the supervision of a major professor and a suitable committee of faculty, and to aim for completion during the fourth year of the program. The faculty will also evaluate the overall performance of all students with research assistantships and decide who among the eligible OHR doctoral students will be awarded aid for assistantship appointments based on their academic record, as well as their performance as a research and/or teaching assistant.

### **Minors Outside of the School of Management**

The School of Management offers minors for PhD students in all areas of study. In addition, various departments in the University offer the following minors:

#### **Computer Science:**

Three courses are required beyond CS 503 and CS 504 or the equivalent.

CS 503 Computer Science for Non-Majors I

CS 504 Computer Science for Non-Majors II

CS 505 Fundamentals of Programming Systems

CS 521 Introduction to Operating Systems

CS 531 Analysis of Algorithms I

CS 572 Introduction to Artificial Intelligence

CS 574 Introduction to Cognitive Science

CS 632 Analysis of Algorithms II

#### **Cognitive Psychology**

A minor in Cognitive Psychology consists of Psychology 639: Cognitive Processes and two courses from the following list. However, only one of the courses marked with an asterisk may be used for the minor.

PSY 627 Perception

PSY 635 Artificial Intelligence

PSY 642 Psycholinguistics

PSY 645 Perceptual and Cognitive Development\*

PSY 718 Memory and Cognitive Development\*



PSY 728 Memory  
PSY 747 Language Development\*

### **Economics**

An economics minor consists of at least one micro theory course (656-666), at least one macro theory course (609-610) and two other courses numbered above 600, all of which must be completed with an average of "B" or better. The possible courses are:

609 Macroeconomic Theory I  
610 Macroeconomic Theory II  
613 Introduction to Econometric Theory  
614 Econometric Theory  
665 Microeconomic Theory I  
666 Microeconomic Theory II  
712 Applied Econometrics  
713 Advanced Econometric Meth I  
714 Advanced Econometrics Methods II  
721 Industrial Organization I  
722 Industrial Organization II  
725 Growth of Underdeveloped Economies I  
726 Growth of Underdeveloped Economies II  
743 Labor Economics I  
744 Labor Economics II  
751 Monetary Theory and Policy I  
752 Monetary Theory and Policy II  
757 Topics in Capital Theory  
758 Marxian Economic Analysis  
761 Theory of Economic Theory I  
762 Theory of Economic Growth II  
763 Public Finance and Fiscal Policy I  
764 Public Finance and Fiscal Policy II  
765 Activity Analysis  
767 Advanced Economic Analysis I  
768 Advanced Economic Analysis II  
771 Mathematical Economics I  
772 Mathematical Economics II  
775 International Economics I  
776 International Economics II  
797 Research in Economics

### **Industrial Engineering**

3 courses:

IE 500 Discrete *or*  
IE 505 Production Planning and Control  
IE 506 Computer Integrated Manufacturing  
IE 551 Simulation and Stochastic Models  
IE 572 Linear Programming  
IE 576 Applied Stochastic Processes  
IE 675 Game Theory

### **Organizational Communication**

The following three courses compose the organizational communication minor:

COM 537 Organizational Communication  
COM 602 Network Analysis  
COM 635 Advanced Organizational Communication

### **Social Psychology**

The minor in Social Psychology consists of satisfactory completion (grade of "B" or better) of Psychology 680: Advanced Social Psychology and two courses from among those listed below. However, only one of the two courses marked by an asterisk may be used for the minor.

610 Theoretical Approaches to Personality  
616 Social Motivation  
686 Small Group Processes  
687 Theories and Strategies of Social Change  
704 Research Methods in Social Psychology\*  
708 Methods of Field Research in Social Psychology\*  
720 Social Influence Processes and Interpersonal Perception  
725 Attitude Structure, Function, and Change  
735 Psychology of Social Interaction  
740 Theory and Research on Achievement Behaviors  
761 Psychology of Social Conflict  
765 Organizational Behavior  
821 Topical Seminar

<sup>1</sup>The requirements are subject to change at the discretion of the department offering the minor.

### **Sociology**

The following three courses compose the sociology minor:

SOC 567 Classical Theory  
SOC 568 Contemporary Theory  
One other Sociology elective (such as SOC 580, Sociology of Groups)

### **Statistics**

Five courses from the following list, at least two of which are at the 500 level, in the Department of Statistics, and at least two of which are not cross-listed with undergraduate courses, with a grade average of B (3.0) or better.

STA 503 Regression and Design of Experiments I  
STA 504 Regression and Design of Experiments II  
STA 505 Statistical Computation  
STA 506 Introduction to Data Analysis  
STA 509 Statistical Quality Control  
CEP 523 Statistical Inference II  
ECO 614 Econometric Applications and Methods

## Chapter III – Doctoral Candidates

### Qualifying Examinations (Comprehensive Exam)

Doctoral candidates must take written qualifying examinations in their major and related field if they are enrolled in the School of Management. Examinations in other areas are determined by the department advisor in that area. All examinations must be completed successfully within three years (36 months). Normally, these examinations are taken immediately after completing coursework. Arrangements for taking an examination will be made through the appropriate PhD advisor by the student. If an examination is failed, it may be retaken. Only in unusual cases, and upon written petition to the PhD Program Committee of the School of Management, may the examination be taken more than twice. If such approval is not granted, the student will be terminated from the program. These examinations are under the control of the department involved. Upon successful completion of each comprehensive, the department will notify the Graduate Programs Office, with a copy to the student.

### Doctoral Program Committee

Faculty members appointed as advisors by the major department supervise and assist students in planning a program until they choose a major professor. Thereafter, a committee, selected by the students in accord with their departments, oversees the remainder of the work. You can find guidelines for the committee [here](#)

### Application to Candidacy

An Application to Candidacy should be filed after six (6) semesters of full-time enrollment for a doctoral degree student. In no case, however, should the Application to Candidacy be filed less than two (2) semesters before the completion of the doctoral degree. You can find the form [here](#).

If a student has completed all required coursework for the core requirements, the major and the minor; and has completed the research paper but has not passed the comprehensive exams, he/she may register for dissertation research. At this stage, the application for candidacy must be submitted. The Application to Candidacy does not require submission of an abstract of the dissertation proposal to the Graduate School. The Graduate School bylaws specify, however, that it is the responsibility of the divisional committee to review and approve or disapprove of proposal abstracts. (Section 3.3.1f.)

When the Graduate School receives and approves the student's Admission to Candidacy forms, a letter of acceptance to candidacy will be sent to the student with a copy to the Graduate Programs Office for the student's file.

### Student Budgets

PhD students are eligible for a one-time \$300 fund to provide support for doctoral research activities after the Application for Candidacy has been submitted. Eligible students should apply to the Business Manager, Resource Management Department in 117 Jacobs with a letter from the chairman of the department supporting the request.

### Dissertation Proposal and Defense Procedures

Students must complete all of their core courses (grade "B" or better), their research papers, and their comprehensive exams before giving their thesis proposals. Dissertation proposals and dissertation defenses may be held on any day when regularly scheduled classes and/or exams are being held at the University. Such events should be scheduled with a member of Graduate Programs Office staff and the respective department. Defenses of both proposals and dissertations are open to all faculty and PhD candidates. Students are strongly advised to attend the defenses of others prior to their own to become familiar with the process and its requirements.

A dissertation or proposal defense must be attended by a member of the PhD Committee. Ordinarily this is the advisor in the major area of the defending doctoral candidate. If the advisor is unable to attend, the PhD Committee will select an alternative representative. A brief outline of the proposal (at least 350 to 500 words) or summary of the dissertation, as appropriate, not to exceed ten pages, shall be distributed

to all faculty members and PhD students in the School of Management along with the announcement of such proposal or defense. The individual PhD candidate is responsible for the preparation of such outline or summary.

TWO (2) COPIES OF THE **PROPOSAL** MUST BE SUBMITTED TO THE GRADUATE PROGRAMS OFFICE AT LEAST **FIVE (5) BUSINESS DAYS IN ADVANCE** OF THE PRESENTATION DATE. IN THE CASE OF A **DEFENSE**, TWO (2) COPIES OF THE DISSERTATION MUST BE SUBMITTED AT LEAST **TEN (10) BUSINESS DAYS IN ADVANCE**. These notice requirements will be strictly enforced, and any doubts as to what constitutes a "school" day should be resolved through consultation with the Graduate Programs Office.

At the conclusion of the public proposal presentation, it will be the dissertation chairman's responsibility to summarize for those present any suggested changes, modifications, etc. As soon after the proposal defense as possible (no longer than two weeks), this summary will be submitted, in writing, to the PhD Program chairman.

### **Oral Defense of a Doctoral Dissertation**

The *Oral Defense* is a public event scheduled by the major department and is attended by the candidate's major professor and graduate committee, members of the faculty from the major department, and the outside reader, when feasible. At the discretion of the major department, the defense-of-thesis examination may take the form of a seminar with a more varied selection of participants. Examination questions will always include questions arising from the thesis itself. In many cases, particularly where departments have not required extensive examinations during the course of the graduate's work, questions will be more general and the examination longer.

### **Reviews of the Dissertation**

The dissertation must be examined and approved by the candidate's committee and the major department, and may be examined by an outside reader.

### **Outside Reader**

In addition to the required three committee members, the doctoral dissertation **may** be examined and approved by an outside reader **as decided by the student's committee**. An outside reader is a qualified individual appointed outside the School of Management who normally holds the highest degree in his or her respective field. Departments must invite faculty from other research (PhD granting) institutions to accept this professional responsibility. If the outside reader is chosen from within the University, he or she would normally be a member of the graduate faculty. Any exception to this will require approval by the PhD Program Chair and/or Committee.

The outside reader provides an independent evaluation of the student's research. Normally this would be limited to an examination of the final draft of the dissertation. The candidate's committee may, however, request that the outside reader become more actively involved in the research.

A letter from the outside reader approving the dissertation must be received by the Dean of the Graduate School before a student can be cleared for graduation. The approval should appear either on an appropriate reader's report form or on an institutional letterhead.

Since the purpose of an outside reader is to obtain an objective expert's opinion, it is obviously inappropriate to select someone who has been associated with the research to serve in this capacity. The letter from the outside reader is required before the date of graduation, but is helpful to the committee prior to the defense.

### **Dissertation and Thesis Work**

"Satisfactory" (S) or "Unsatisfactory" (U) or letter grades should be assigned each semester for dissertation and thesis work, since these grades do not imply approval of the dissertation or thesis itself. Many departments use the term "Research" for work being performed by students who are at the dissertation stage, and such work is normally graded on an "S" or "U" basis each semester.

The grade of "L" may be assigned to dissertations, theses, and projects in which continuing registration is required by the University. It will connote registration and faculty workload, but it will not have any quality points associated with it. Professors may convert an "L" grade to a letter grade or an "S" or "U" grade when the dissertation, thesis, or project is completed.

### **Doctoral Candidates Overview**

#### **Dissertation Instructions**

This should be an original contribution in the field as determined by the department or program concerned.

Please consult the Graduate School guidelines on dissertations for complete instructions on dissertation format and submission.

<http://grad.buffalo.edu/study/progress/policylibrary.html#dissertation>

#### **M-Form (Multipurpose Form)**

As the name implies, the M-Form is used for several purposes. Related to the thesis or dissertation, the form is submitted to the Graduate School Office to certify that defense of thesis was satisfactorily completed and that ALL requirements for the degree have been satisfied. This form must be signed by the major professor, the committee members, and by the chair or graduate director of the department. Here, too, the form may be submitted prior to presenting the thesis/dissertation to the Graduate School Office.

## **Chapter IV – Graduate School Policy on Grievance Procedures for Graduate Students**

## **Chapter V – Disciplinary Procedures for Academic Infractions**

## **Chapter VI – General Information**

### **State University of New York At Buffalo Policies Governing Non-Discrimination**

The following University policy statements are reissued in accordance with the requirements of various federal and state laws and regulations and executive orders.

#### General Policy

In accordance with federal and state laws, no person, in whatever relationship with the State University of New York at Buffalo, shall be subject to discrimination on the basis of age, creed, color, disability, national origin, race, ethnicity, sex, sexual orientation, marital or veteran status.

Additionally, Governor's Executive Order 28, as amended, prohibits discrimination on the basis of sexual orientation in the provision of any services or benefits or in any matter relating to employment. The policy of the Board of Trustees of the State University of New York also requires that personal preferences of employees and students which are unrelated to performance, such as private expression or sexual orientation, shall provide no basis for judgment relating to such individuals.

#### Sexual Harassment

Sexual harassment of employees and students, as defined below, is contrary to University policy and is a violation of federal and state laws and regulations.

Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute sexual harassment when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic advancement; (2) submission to or rejection of such conduct by an individual is used as the basis for employment or academic decisions affecting such individual; (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance, or creating an intimidating, hostile, or offensive environment.

No University employee of either sex shall impose a requirement of sexual cooperation as a condition of employment or academic advancement, or in any way contribute to or support unwelcomed physical or verbal sexual behavior.

Adapted from "Guidelines on Discrimination Because of Sex, 29 CFR Part 1604.11, 45FR74676."

#### Right of Persons with Disabilities to Identify Themselves

Title 28 of the Code of Federal Regulations, implementing Title II of the Americans with Disabilities Act of 1990, defines a disabled person as one who has (1) a physical or mental impairment which substantially limits one or more major life activities, (2) a record of such an impairment, or (3) is regarded as having such an impairment, who can, with or without reasonable accommodation perform the essential functions of a job, or meet the essential requirements for receipt of a service or participation in a program.

Under section 60-741.4 of the regulations implementing Section 503 of the Rehabilitation Act of 1973, all employees with disabilities who would like to be considered under the University affirmative action program are invited to identify themselves by letter or telephone call.

Information will be handled on a confidential basis, and persons may call for further information without having to identify themselves by name or department.

Any member of the University community who requires additional information, wishes to make a complaint or to receive a copy of the University procedures to be followed for complaints arising from matters related to the policies outlined above should contact: Affirmative Action Officer, 517 Capen Hall, Phone (716) 645-2266.