



MAYS BUSINESS SCHOOL
T E X A S A & M U N I V E R S I T Y

HANDBOOK

for

Ph.D. in Business Administration:

Operations and Supply Chain Management

at

Mays Business School

Texas A&M University

2017

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Contents

1	Introduction	1
1.1	Mission Statement	1
1.2	Program Objectives	1
1.3	Operations and Supply Chain Management Faculty Recognitions	2
1.4	Recent Published Papers by PhD Students (students' names in bold)	2
1.5	Recent Placement of PhD Students	2
2	Program Curriculum and Requirements	3
2.1	Prerequisites	3
2.2	Credit Hours Requirements	3
3	Program Milestones	6
3.1	Time-lines	9
4	Advising and Performance	9
4.1	Formation of Advisory Committee	9
4.2	Performance Standards	9
4.3	Graduation Requirements	9
4.4	Role of the Ph.D. Advisor	12
4.5	Department Ph.D. Committee (DPC)	13
5	Graduate Student Expectations	14
6	Students with Disabilities	15
7	Aggie Honor Code	15
8	Application Process	15
9	Financial Information	17
10	Department Faculty Research Interests	18
A	Office of Graduate Studies Degree Plans Fact Sheet	20
A.1	Degree Plan Checklist	20
A.2	Q&A	21
B	Course List and Description	23
B.1	Required Research Method Courses	23
B.2	Elective Statistics Courses	24
B.3	Elective Analytical-focused Courses	25
B.4	Elective Empirical-focused Courses	26
C	Program Progression Chart	27

1 Introduction

This Handbook is intended to supplement the *Mays Business School Ph.D. Program Handbook*, *TAMU Graduate Catalog*, and other documents outlining the Ph.D. in Business Administration - Operations and Supply Chain Management. All doctoral students in Operations and Supply Chain Management should have electronic copies of the *Mays Business School Ph.D. Program Handbook* (<http://mays.tamu.edu/ph-d-student-handbook/>) and *TAMU Graduate Catalog* (<http://catalog.tamu.edu/>) and be familiar with the provisions that pertain to the Texas A&M University Ph.D. program.

1.1 Mission Statement

To facilitate the development of research and teaching skills that enable successful careers in leading research institutions.

1.2 Program Objectives

The Ph.D. program in Business Administration - Operations and Supply Chain Management has the following major objectives:

- Prepare students to conduct high-quality research that extends Operations and Supply Chain Management theory and that is relevant to practice and to business organizations
- Communicate research findings through presentations at academic conferences/seminars, through teaching and writing, and through publications in high quality journals
- Prepare students for the varied responsibilities and opportunities of careers at leading research universities/institutions

Throughout the Ph.D. program, an in-depth understanding and appreciation of the relevant theoretical and empirical literature are emphasized. Students are expected to gain the necessary conceptual and methodological skills required to carry out high-quality empirical or analytical research. These objectives are accomplished in several ways: formal course work; independent study and reading; student- or faculty-initiated research projects; and dissertation research. This research can lead to students authoring or co-authoring papers with faculty members and other Ph.D. students. A variety of PhD seminar courses offered by the faculty provide students with the opportunity to broaden their development. Although there is no formal credit granted, doctoral students are expected to participate in the following activities: seminars presented by prospective faculty members, current faculty, and visiting faculty; PhD students' seminars; academic conferences; and meetings with visiting faculty members when appropriate. It is imperative that prospective and entering students recognize that developing research skills and teaching skills are the two fundamental objectives of our Ph.D. program.

1.3 Operations and Supply Chain Management Faculty Recognitions

The department's faculty has received numerous research and teaching awards as well as other recognitions such as election to leadership positions in professional associations. We are actively engaged in a variety of research projects that are regularly disseminated through articles in major journals and presentation at conferences and meetings. Operations and Supply Chain Management faculty have been recognized in a variety of ways:

- The Operations and Supply Chain Management faculty was ranked #6 in research productivity among the business schools in the field of Operations Management in the world by a recent UT Dallas ranking. This ranking is based on the number of papers published in three top journals (*Production and Operations Management*, *Manufacturing and Service Operations Management*, and *Journal of Operations Management*) in our field during 2014-2017.
- Department faculty members have served as Department Editors and Associate Editors of these leading journals: *Production and Operations Management*, *Manufacturing and Service Operations Management*, and *Journal of Operations Management*.
- The Department of Information and Operations Management was ranked the eleventh best U.S. Supply Chain Program according to Gartner Group 2016.

1.4 Recent Published Papers by PhD Students (students' names in bold)

- **Akturk, M. S.**, Abbey, J., Geismar, H. N. 2017. Strategic design of multiple lifecycle products for remanufacturing operations. *IIEE Transactions*, 49(10), 1-13.
- **Huang, Y.**, Geismar, H.N., Rajamani, D., Sethi, S.P., Sriskandarajah, C., Carlos, M. 2017. Optimizing Logistics Operations in a Country's Currency Supply Network. *IIEE Transactions*. 49(2), 223-237.
- **Lee, S. J.**, Abbey, J. D., Heim, G. R., Abbey, D. C. 2016. Seeing the forest for the trees: Institutional environment impacts on reimbursement processes and healthcare operations. *Journal of Operations Management*. 47, 71-79.
- Koufteros, X., **Vergheze, A. J.**, Lucianetti, L. 2014. The effect of performance measurement systems on firm performance: A cross-sectional and a longitudinal study. *Journal of Operations Management*. 32(6), 313-336.

1.5 Recent Placement of PhD Students

Recent graduates hold faculty positions at universities such as:

- University of Florida
- Clemson University
- Santa Clara University
- Oregon State University

2 Program Curriculum and Requirements

2.1 Prerequisites

The prerequisites for entry into the Ph.D. in Business Administration – Operations and Supply Chain Management program include a baccalaureate degree in a related discipline (Business, Engineering, Information Systems, Economics, Mathematics, etc.) and the equivalent to the undergraduate course work listed below (numbers in parenthesis are the corresponding Texas A&M University undergraduate courses).

- Several Variable Calculus (MATH 221)
- Linear Algebra (MATH 304)
- Statistical Methods (STAT 303)
- Operations Management (SCMT 364)
- Two courses from core business areas such as marketing, finance, etc. (This requirement can be satisfied after being enrolled in the program.)

Exceptional applicants that have not fulfilled all of these requirements might be still be considered for admission with the understanding that they will have to fulfill those requirements prior to final acceptance into the Ph.D. program. Any such requests should be discussed with the Ph.D. Program Advisor, prior to submitting an application.

2.2 Credit Hours Requirements

The minimum requirements for a Ph.D. in Business Administration - Operations and Supply Chain Management (for students entering the program with a master's degree) are reviewed on the following pages and summarized as follows:

Areas	Minimum Credit Hours
Research Methods	15
Doctoral Seminars	15
Focused Research Methods	9
Directed Research	3
Dissertation Research	18-24
Total Minimum Requirement	64

The Ph.D. in Business Administration – Operations and Supply Chain Management program normally consists of two to three years of coursework, plus two years of research work to complete the doctoral dissertation. A minimum of 64 credit hours¹ beyond the master's degree (96 beyond the baccalaureate) is required by university regulations, including 18-24 hours for dissertation research. For the academic program, the department requires 36 hours of coursework plus 6 hours of directed research study beyond the prerequisites. The student's advisory committee might require additional coursework beyond these departmental requirements. The departmental requirements are described below.

¹This is the TAMU minimum requirement. The minimum of 64 semester credit hours is normally exceeded because of the minimum enrollment requirement of 9 hours per semester and 6 hours per summer for doctoral students in the Mays Business School.

- **Research Methods (15 hours)** – Each student will complete five specified research methods courses. These courses provide the student with a working knowledge of the research methodologies commonly employed in operations and supply chain management research. The requirement includes a course in each of the following: deterministic models, stochastic models, economics, statistics, and multivariate methods. Specific course selections are based on each incoming student’s academic background.

Code	Course Name	Recommended Semester
AGEC 641	Operations Research Methods in Agricultural Economics	Fall 1st Year
ECON 607	Foundations of Microeconomic Theory	Fall 1st Year
STAT 630	Overview of Mathematical Statistics	Fall 1st Year
ISEN 609	Probability for Engineering Decisions	Spring 1st Year or Fall 2nd Year
STAT 636	Applied Multivariate Analysis	Spring 1st Year or Fall 2nd Year

- **Doctoral Seminars (15 hours)** – Research seminars provide the student with exposure to a wide variety of research studies within the operations and supply chain management domain. The seminars cover classic papers in the field as well as articles examining current and emerging research topics. Due to the evolutionary nature of research, seminar content will evolve over time. These seminars expose the student to a wide variety of research questions and methodologies. The seminars provide the student with a platform for defining his/her own research program. Three of the five seminars constitute the core body of knowledge in the area of operations and supply chain management, while the other two seminars are offered as special topics. The special topic seminars are offered at the discretion of the Departmental Ph.D. Committee (DPC) and the department head. In addition, from time to time, the department may offer other doctoral seminars. All regularly scheduled or one-time departmental seminars are mandatory for all students. The following is a example list of doctoral seminars, which is not comprehensive, offered in the recent years. Many of our students also take research seminars in the Management and Marketing departments to further develop their research skills. Each seminar is equivalent to 3 credit hours.

Tentative List of Seminars

No.	Seminar Title
1	Research Tools for IS and OM
2	Combinatorial and Discrete Optimization
3	Closed-loop SCM
4	Empirical Research in OM
5	Research Methods and Applications in OM and SCM
6	Behavioral Operations Management

- **Focused Research Methods (9 hours)** – Conducting high quality research requires that the student obtain cutting edge expertise in applied research methodology. This objective is accomplished by completing three advanced courses focusing on research methodologies appropriate to the student’s dissertation topic. The student, in consultation with the advisory committee members, will select the specific courses.

The following is a list from which students can select courses that can satisfy the focused research methods requirement. Students should consult with the Ph.D. Advisor and/or their

dissertation advisor(s) prior to enrollment. The list is roughly divided into three parts: (1) Statistics, (2) Analytical-focused, and (3) Empirical-focused. Also note that this list is not comprehensive; more courses can be found in the graduate catalog.

(<http://catalog.tamu.edu/graduate/course-descriptions/>)

List of Courses

Statistics Course List	
STAT 608	Regression Analysis
STAT 626	Methods in Time Series Analysis (Available in Summer)
STAT 645	Applied Biostatistics and Data Analysis
STAT 647	Spatial Statistics
STAT 652	Statistics in Research II (Available in Summer)
STAT 653	Statistics in Research III
STAT 659	Applied Categorical Data Analysis (Available in Summer)

Analytical-focused Course List	
ECON 629	Microeconomic Theory I
ECON 630	Microeconomic Theory II
ECON 631	Microeconomic Theory III
ECON 659	Behavioral Game Theory
AGEC 642	Dynamic Optimization in Agricultural and Applied Economics
AGEC 643	Applied Simulation in Agricultural Economics
ISEN 615	Production and Inventory Control
ISEN 616	Design and Analysis of Industrial Experiments
ISEN 621	Heuristic Optimization
ISEN 622	Linear Programming
ISEN 623	Nonlinear and Dynamic Programming
ISEN 625	Simulation Methods and Applications
ISEN 636	Large-Scale Stochastic Optimization

Empirical-focused Course List	
ECON 649	Industrial Organization I
ECON 650	Industrial Organization II
ECMT 675	Econometrics I
ECMT 676	Econometrics II
ECMT 677	Applied Microeconometrics
ECMT 678	Nonparametric Econometrics
ECMT 679	Time Series Econometrics
AGEC 622	Agribusiness Analysis and Forecasting
AGEC 661	Applied Econometric Methods in Agriculture
EPSY 651	Theory of Structural Equation Modeling
EPSY 652	Theory of Hierarchical Linear Models
EPSY 653	Advanced Structural Equation Modeling
MGMT 673	Advanced Research Methods in Management

- **Directed Research (3 hours)** – Directed research provides an opportunity for the student to work closely with a faculty member on a research project. The objective of the directed research is to lay the foundation for a research paper that is eventually presented at a national professional society meeting and published in a top quality academic journal. In addition, the directed research provides a significant opportunity for exploring in-depth potential dissertation research topics. The directed research is scheduled during the first two years of the student’s course work.
- **Students’ Participation** – Active participation in the research seminar series is an essential component of the program. The research seminar series provides a forum for visiting scholars, faculty, and doctoral students to share and nurture research ideas. Each student’s second-year paper, dissertation proposal, and dissertation defense will be presented in a scheduled departmental seminar. All students are expected to actively participate in the seminar series by asking questions and providing constructive feedback.

3 Program Milestones

Each student’s development is evaluated at five major milestones. These milestones include the qualifying exam, qualifying research paper, preliminary exam, dissertation research proposal, and dissertation research defense. Figure 1 summarizes these important milestones.

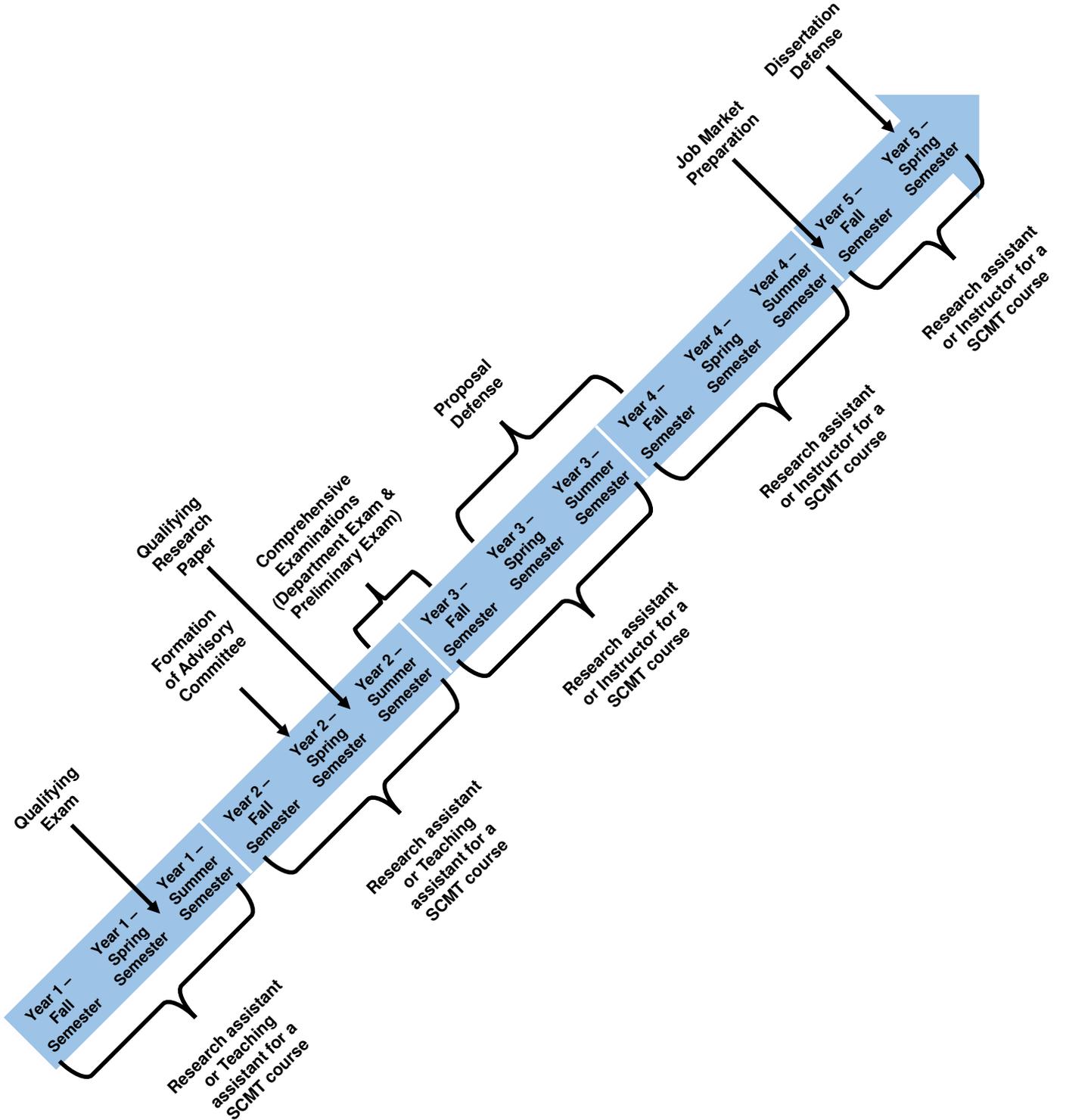
- **Qualifying Examination (summer after first year)** – The qualifying examination provides a rigorous assessment of the student’s academic performance during the first year of the program. The duration and format of the examination is at the discretion of the Departmental Ph.D. Committee (DPC). The exam content reflects the topics covered in Ph.D.seminar and research methods courses taken during the first year. The DPC will assess the student’s performance on the qualifying exam, also taking into account the student’s performance in the courses taken during the first year, the input from the faculty conducting the Ph.D. seminars, and the opinion of the faculty with whom the student has been conducting research.
- **Qualifying Research Paper (summer after second year)** – Each student is expected to prepare, under the supervision of one or two faculty members, a single-authored publishable quality research paper by May 31 after the second year of study. The genesis of such a paper could arise from a course taken for credit or a research project with a faculty member. The research paper will be evaluated by the DPC. Successful completion of the Qualifying Research Paper is a prerequisite for taking the Comprehensive Examination.
- **Comprehensive Examinations (summer after second year)** – The comprehensive examinations verify that the student is prepared to pursue dissertation research in Operations and Supply Chain Management. The examinations are conducted in two successive parts: the Departmental exam and the Preliminary exam. The duration and format of the Departmental examination is at the discretion of the DPC. The Departmental exam ascertains whether the student has mastered the content of the operations and supply chain management domain. This is judged by performance on a written examination covering the research seminar topics plus supplemental readings relevant to the student’s intended research topic, by performance in courses, performance on assigned RA and/or TA responsibilities, and performance as specified in semi-annual performance evaluations. In order to pass this exam, the student must receive a majority vote of the DPC. If a student fails on the first attempt, a second

attempt will be allowed within one semester of the first attempt. A second failure will result in dismissal from the program.

Only after successful completion of the Departmental exam will a student be allowed to sit for the Preliminary exam. The Preliminary exam assesses the student's preparedness to conduct the dissertation research and is administered by the student's dissertation advisory committee. The format, content, and delivery of this exam are at the discretion of the student's advisory committee chair. Upon successful completion of the Preliminary exam, the student officially becomes a Ph.D. candidate and may pursue dissertation research. More guidelines regarding the Preliminary exam are provided by the Office of Graduate and Professional Studies.

- **Dissertation Proposal Defense (spring of third year or early fall of fourth year)** – The student's advisory committee is responsible for administering the dissertation proposal defense. The purpose is to evaluate the potential of the proposed research in satisfying the dissertation research requirements and to allow the advisory committee to provide the student with guidance. Upon completion, both the student and advisory committee will clearly understand the definition, objectives, scope, deliverables, and necessary steps for completing the dissertation research.
- **Teaching Preparation** – During the second year, each student assists a professor as a teaching assistant for a supply chain management course. Each student is expected to teach two to three sessions of the course under the supervision of the professor. From third year, students are also required to gain teaching experience by being an instructor of a course. Each student is expected to teach a minimum of one semester course per year during the third to fifth year period of his/her study.
- **Job Market Preparation (early fall of fifth year)** – Students are required to be ready with their job market package before the INFORMS Conference that is held during the fall semester. The job market application packet includes professional résumé, and research and teaching statements. Students prepare a list of Universities/Institutions to send application packet and prepare for preliminary interviews at conferences. Students also prepare a job talk, rehearse responding to questions, and prepare for campus interviews. Students may seek advice throughout the process from their dissertation advisors, other faculty members, recent graduates of the department, and each other.
- **Dissertation Defense** – During the dissertation defense the advisory committee evaluates the quality of the dissertation research and the preparedness of the student to conduct independent research in operations and supply chain management. By successfully passing the defense, a student has met all the program requirements and will have earned his/her degree, contingent upon meeting the additional requirements of the Office of Graduate and Professional Studies.

Figure 1: Important Milestones



3.1 Time-lines

Tentative coursework schedule and important milestones are listed in Tables 1 and 2.

4 Advising and Performance

4.1 Formation of Advisory Committee

While the DPC, through the Ph.D. Program Advisor, is responsible for guiding, evaluating, and providing feedback to doctoral students during their first two years in the program, the student's Advisory Committee will assume these responsibilities once the student passes the Preliminary examination, although some guidance begins in the latter part of the second year. Specifically, the advisory committee is responsible for: a) the authorization of the degree plan (selection of focused research and other relevant courses for the student's dissertation plans); b) the Preliminary exam; and c) assessing the dissertation proposal and dissertation defense. Given the importance of the advisory committee, students are encouraged during the first year of study to take the initiative to meet with the department's faculty to identify common research interests and a potential chair for the student's advisory committee. Appointments of chairs of advisory committees will be determined in consultation with the Department Head.

4.2 Performance Standards

The grading standards within the department are significantly more rigid than the university requirements. Any student who receives two C's or two U's or a combination of the two while in the program will be recommended to the Office of Graduate and Professional Studies for automatic dismissal. In addition, students are required to maintain a GPA of 3.5. If the GPA falls below this threshold, a student will be put on academic probation for the following semester. Failure to raise the GPA above the threshold by the end of the following semester will result in recommendation to the Office of Graduate and Professional Studies for automatic dismissal.

The Ph.D. Advisor will review the performance of each Ph.D. student at the end of each semester in the first two years of the program. This process will be based on grades and feedback from faculty conducting Ph.D. seminars and other courses. The purpose of the review is to provide constructive feedback to students and for students to know whether or not they are making satisfactory progress in the program. Students with two or more performance reviews of unsatisfactory progress may be recommended for dismissal.

4.3 Graduation Requirements

The Ph.D. in Business Administration – Operations and Supply Chain Management degree is not granted solely for the completion of coursework, residence, and technical requirements, although these must be met. To qualify for graduation, candidates must also demonstrate a strong grasp of the subject matter of a broad field of study along with an ability to do independent research that makes a significant contribution to the body of knowledge. In addition, candidates must acquire the ability to communicate clearly and assertively, both orally and in writing.

Table 1: Tentative Coursework Schedule and Important Milestones - Years 1 and 2

		Coursework	Work Assignment
PhD Year One	Fall Semester	4 Courses (include 4 required course if available) (Total: 12 credit hours) (Total: 12 credit hours)	10hrs/week - Research Assistant
	Spring Semester	4 Courses (include 1 required course if available) (Total: 12 credit hours)	10hrs/week - Research Assistant
	Summer Semester	2 Elective Courses (Total: 6 credit hours)	20hrs/week - Research Assistant
	Qualifying Exam	This exam is generally given around the last week of May, i.e., before the start of summer semester. See Section 3 for more information regarding the exam.	
PhD Year Two	Fall Semester	3 Courses (include 3 required course if available) (Total: 9 credit hours)	10hrs/week - Teaching Assistant 10hrs/week - Research Assistant
	Spring Semester	3 Courses (include 1 required course if available) (Total: 9 credit hours)	20hrs/week - Research Assistant
	Summer Semester	2 Elective Courses (Total: 6 credit hours)	20hrs/week - Research Assistant
	Formation of Advisory Committee	Each Student selects his/her advisory committee at least 120 days prior to taking the prelim examination. The degree plan needs to be approved by the office of graduate studies (OGAPS) at least 90 days prior to the prelim exam. Students will not be allowed to take the written exam without an approved degree plan. Students are encouraged to refer to the OGAPS website for steps to be taken before the prelim exam: http://ogaps.tamu.edu/New-Current-Students/Getting-a-Degree/Preliminary-Exam-Requirements	
	Qualifying Research Paper	Second year paper is due by May 31st and is to be submitted to the PhD Advisor.	
	Comprehensive Exam - Department Portion	This exam is coordinated by the PhD Advisor during the summer semester of the second year. See Section 3 for more information regarding the exam.	
Preliminary Exam - Committee Portion	This exam is given by the student's advisory committee. This exam may consist of an oral portion or a written portion or both at the discretion of the committee.		

Table 2: Tentative Coursework Schedule and Important Milestones - Years 3 - 5

		Coursework	Work Assignment
PhD Year Three	Fall Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Spring Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Summer Semester	SCMT 691 or other courses if required by the advisor (Total: 6 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Dissertation Proposal Defense	It is recommended that the student defend his/her dissertation proposal during the spring semester of year three or early Fall semester of year four. However, the proposal must be completed by the end of spring semester of year four.	
PhD Year Four	Fall Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Spring Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Summer Semester	SCMT 691 or other courses if required by the advisor (Total: 6 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Job Market Preparation	Each student is required to be ready with his/her job market package before the INFORMS Conference that is held during the fall semester.	
PhD Year Five	Fall Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Spring Semester	SCMT 691 or other courses if required by the advisor (Total: 9 credit hours)	Instructor for a SCMT course OR 20hrs/week - Research Assistant
	Dissertation Oral Defense	Each student defends his/her dissertation during the spring semester of year five. However, the student may choose to defend the dissertation during the summer semester of year five if approved by the department head and the PhD Advisor.	

4.4 Role of the Ph.D. Advisor

A Ph.D. Advisor will be appointed by the Head of each department from the members of the Graduate Faculty. The Ph.D. Advisor represents the Faculty on the Mays Business School Ph.D. Program Committee and is the main administrative link between the Department and the Office of Graduate and Professional Studies concerning graduate student and program matters. In this capacity, the Ph.D. Advisor is the administrative director for the department's Ph.D. Program in Business Administration.

Additionally, the Ph.D. Advisor²:

- Answers inquiries and actively solicits applications to the Ph.D. Program in Business Administration - Operations and Supply Chain Management.
- Is responsible for screening applicants so that the pool of Ph.D candidates referred to the Department Ph.D. Committee (DPC) all meet a high standard of qualifications.
- Provides assistance to the Department Head for selecting members of the DPC. The Ph.D. Advisor serves as Chair of this committee.
- Advises and evaluates first-year and second-year Ph.D. students.
- Advises any students not currently assigned to an Advisory Committee. In addition to advice about courses and administrative requirements, the Ph.D. Advisor should counsel students about major areas of interest within the field of Operations and Supply Chain Management. Finally, the Ph.D. Advisor directs students toward likely faculty members to serve on their Advisory Committees. Once the Advisory Committee has been appointed, primary advising duties are transferred to that body. However, the Ph.D. Advisor continues to monitor the progress of all students in the program and gives advice or information as needed to supplement that provided by the Advisory Committee.
- Approves the composition of all Advisory Committees, as well as changes made to these committees.
- Approves all "letters of intent" from students who graduate from another program at Texas A&M University and seek permission to enroll into the Ph.D. in Business Administration – Operations and Supply Chain Management program.
- Approves all petitions for change of major, department, or degree program, filed by students who wish to transfer into or out of the Ph.D. in Business Administration – Operations and Supply Chain Management program.
- Assigns Graduate Assistants to Operations and Supply Chain Management faculty.
- Maintains records on all graduate students and ensures compliance with all Department, School, and Graduate Office policies. Departmental policies, procedures, and recruiting information are to be maintained by the Ph.D. Advisor.
- Advises the Department Head and the Graduate Faculty of the Department on all matters pertaining to the doctoral program.

²Adopted and modified from the PhD handbook of the Mays Finance department.

4.5 Department Ph.D. Committee (DPC)

The DPC is appointed by the Department Head, in consultation with the Ph.D. Advisor. This committee has at least four members, all of whom must have Graduate Faculty status at Texas A&M University. The department head is an *ex officio* member of the Ph.D. program committee. The Ph.D. program committee will³:

- Design and grade the Qualifying Examination for all students during their first summer in residence at Texas A&M University.
- Assist the Ph.D. Advisor in performing the semi-annual evaluation of first-year and second-year doctoral students as needed.
- Advise the Ph.D. Program Advisor in matters that concern the Ph.D. in Business Administration – Operations and Supply Chain Management Program.
- Review applicants for Ph.D. in Business Administration – Operations and Supply Chain Management Program and make final acceptance decisions by majority vote. The Ph.D. Advisor is a voting member in the DPC on matters related to applications or policies regarding PhD program.
- Approve, by a majority vote, all substantive curriculum, policy and procedural changes to the Ph.D. in Business Administration – Operations and Supply Chain Management Program.

³Adopted and modified from the PhD handbook of the Mays Finance department.

5 Graduate Student Expectations

Each graduate student is expected to⁴:

Exercise the utmost integrity in all facets of the graduate program.
Behave in a professional and mature manner in all interactions with faculty, staff, and fellow students, both graduate and undergraduate.
Learn the rules and regulations governing graduate education, including those promulgated by Texas A&M University, Mays Business School, and the degree program.
Enroll in the appropriate course work to complete the degree plan.
Maintain the appropriate standards to continue graduate studies.
Understand that the faculty advisor and the committee members sustain the intellectual and instructional surroundings in which the student develops competencies.
Understand that the faculty members have the right to allocate their own professional time and other resources in diverse forms that are academically effective.
Acknowledge, as appropriate, the contributions of the faculty advisor and others in the student's publications and conference presentations.
Maintain appropriate confidentiality concerning the creative activities and research of faculty, staff, and fellow students prior to presentation or publication, in accordance with existing practices and policies of the discipline and of Texas A&M University.
Submit documents (proposal, thesis, dissertation, etc.) that are the original work of the student. Plagiarism will not be tolerated.
Dedicate the appropriate time and energy to accomplishing academic excellence and completion of the program.
Understand the time constraints and other requests faced by faculty members and program staff.
Initiate inquiry to advance understanding of the academic subjects and advances in the field.
Speak regularly with the faculty advisor and committee members, particularly with concerns associated with progression in the graduate program.
Actively participate in all departmental seminars featuring the research of outside invited faculty as well as that of our own faculty and graduate students.
Manage their own research development within the Ph.D. in Business Administration program, initiate contacts with faculty and graduate students that are likely to have similar research interests, follow up on such contacts, and bring all research projects to a fruitful conclusion.

⁴Adopted and modified from the PhD handbook of the Mays Finance department.

6 Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in White Creek Apartments (Building 62) at 701 West Campus Boulevard or call 979-845-1637. For additional information visit <http://disability.tamu.edu>.

7 Aggie Honor Code

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. You can learn more about the Honor Council Rules and Procedures as well as your rights and responsibilities at the following URL: <http://aggiehonor.tamu.edu>.

8 Application Process

A formal application is required of all persons seeking admission to the Ph.D. in Business Administration – Operations and Supply Chain Management program. The Ph.D. program only admits students during the fall semester. The admission process has strict deadlines, as shown below.

Currently enrolled Texas A&M University graduate students

Application instructions for students currently enrolled in another graduate degree program at Texas A&M University and wishing to apply for admission to Mays Business School can be obtained by contacting us at phdprogram@mays.tamu.edu or (979) 845-4711.

The following dates are in chronological order of application review and funding opportunities.

- **September 3:** Fall application available to begin submission process.
- **December 10:** Strongly recommended that all applicants (U.S. citizens, U.S. permanent residents, and international) submit their online application/uploaded documents for early review and the best consideration for available financial support, including university, Mays Business School, and departmental fellowships.
- **December 11 – January 11:** Primary review period. Applications continue to be accepted.
- **January 12 – April 14:** Applications continue to be accepted, though student funding opportunities may decrease.
- **December 11 – April 14:** Applications continue to be accepted, though in some years, the application cycle closes as early as February. Funding opportunities may decrease for applications received late in the cycle.

- **April 15 – May 25:** Application acceptance may be closed at any time as the program fills.
- **May 26:** Application acceptance closes. No additional application submissions can be accepted after this date, even if the online application has been started.

Application submission and departmental review are conducted electronically.

We do not use official test scores or transcripts to review Mays Business School Ph.D. Program applications.

- Submit online application and upload requested documents only. Do not mail paper documents or additional information.
- Apply online using our ApplyYourself application form.
- Application fee paid online by credit card within the ApplyYourself application system.
- Upload supporting documents:
 - Essay/Personal statement question(s).
 - Scanned transcripts (.pdf) from each senior-level post secondary institution for the review process.
 - * File size should not exceed 4mb. To reduce file size, scan dpi around 150 if needed.
 - * Unofficial transcripts printed from student academic accounts may be uploaded. (We understand a transcript may not list final grades if applying in a current semester.)
 - Professional résumé.
- Three (3) letters of recommendation uploaded into ApplyYourself by the recommenders or submitted by email (scmphd@mays.tamu.edu). No more than three letters will be accepted for review. Electronic letters of recommendation are recommended in order to expedite your application. Use this Mays Business School form (<http://mays.tamu.edu/phd-accounting/wp-content/uploads/sites/31/2015/03/RECOMM2013cycle1.pdf>) if your reference chooses to send by mail instead of via the online system.
- Unofficial GMAT or GRE scores will be typed into your ApplyYourself application. Do not send an official or paper hard copy.
- The Core Residency Questionnaire is contained within the application.
 - Ph.D. applicants only need to complete parts A and B.
 - Parts C-H are for MS/MRE applicants only and should not be completed by Ph.D. Applicants.
- International applicant section
 - Unofficial TOEFL or IELTS score will be typed into your application. The entire international section must also be completed.
- Not reviewed: certificates, writing samples, research, etc.

Mailing Supporting Documents for Ph.D. Admissions

The Ph.D. Program only accepts applications and supporting documents using the online application system. **Additional documents received by mail will not be considered.**

The program mailing address for **formally admitted students** is

Mays Business School – Ph.D. Program
Graduate Admissions Office
Texas A&M University
440 Wehner
4113 TAMU
College Station, Texas 77843-4113

Submitting Test Scores for Ph.D. Admissions

- GRE and TOEFL code is 6003
- GMAT code is Mays Business School Ph.D. Program specific: 7B7-K9-57
- IELTS (International English Language Testing System) a minimum score of 6.0. Additional information can be found at [ielts.org](https://www.ielts.org/) (<https://www.ielts.org/>). There is not an institutional code for use with the IELTS examination; therefore, please send official score to: Data & Research Services, Texas A&M University, 4239 TAMU, College Station, Texas 77843-4239.
- Test information is available at [mba.com](http://www.mba.com/us) (<http://www.mba.com/us>) for the GMAT and <http://www.ets.org/gre/> for the GRE.

Apply online at the Mays Business School online application system:
(https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantLogin.asp?id=tamu-ms)

9 Financial Information

Students in the Ph.D. in Business Administration – Operations and Supply Chain Management program typically hold a graduate assistantship, which is the principal means of financial support throughout the duration of the Ph.D. program. Assistantships provide experience through work as teaching assistant and research assistants, as well as in lecturing roles later in the Ph.D. program.

The assistantships require a work commitment of 20 hours per week and registering for 9 credit hours each fall/spring semester (6 credit hours during the summer, if funded). Depending on the qualifications of the applicant and availability of funds, most students can expect a graduate assistantship compensation equal to \$20,000 per year, in addition to a non-resident tuition waiver and Texas A&M University’s Tuition Payment Program, which is currently valued at approximately \$5,000 per academic year. The Tuition Payment Program assists with tuition costs up to 9 credit hours during the Fall/Spring semesters, and 6 credit hours during the summer term. Students are responsible for paying university fees outside of the covered program costs.

A limited number of graduate college fellowships are also available. The most qualified applicants to the Ph.D. program stand an excellent chance of qualifying for graduate college fellowships ranging from \$3,000 to \$8,000 per academic year. Each year, Texas A&M University’s Office of Graduate Studies also awards or administers a number of one-year fellowships. To be eligible, applicants must be admitted to Graduate Studies, pursue a Doctorate degree in any of the programs offered by Texas A&M University, and be nominated by their respective department.

In addition, other sources of funding for doctoral dissertation research and travel associated with research are available on a competitive basis at the university, college, and department levels.

10 Department Faculty Research Interests

Richard Metters, Department Head and Tenneco Professor in Business

Research Interests: Supply chain management; service operations; inventory management

James Abbey, Assistant Professor

Research Interests: Closed-loop supply chains; sustainable operations; perceptions and valuations of multiple lifecycle products; healthcare reimbursement systems; healthcare policy and audit control systems

Anupam Agrawal, Associate Professor

Research Interests: Procurement; supplier development; new product development; supply chain management

Alexandar Angelus, Assistant Professor

Research Interests: Supply Chain Management; electricity markets and energy policy, manufacturing and inventory systems; multiechelon problems; assembly systems; capacity management; healthcare operations

Antonio Arreola-Risa, Associate Professor

Research Interests: Manufacturing and inventory systems as well as service operations with emphasis on enterprise resource planning/supply chain management and health care systems management

Neil Geismar, Associate Professor and Center for Executive Development Professor

Research Interests: Robotic cell scheduling; production and delivery coordination for zero-inventory systems; currency supply chain

Gregory R. Heim, Associate Professor and Janet and Mark H. Ely '83 Professor

Research Interests: Service and e-service operations; management of technology and quality; supply chain management; empirical research methods; healthcare service operations

Michael Ketzenberg, Associate Professor and Center for Executive Development Professorship in Business Administration

Research Interests: Consumer returns; value of information in supply chain management; closed loop supply chains; data analytics

Xenophon Koufteros, Professor and Jenna and Calvin R. Guest Professor

Research Interests: Supply chain management; service operations; inventory, supply chain management and security; time-based competition; manufacturing strategy; product development and innovation

Rogelio Oliva, Professor and Bob and Kelly Jordan Professor of Business

Research Interests: Service operations; behavioral operations management; behavioral decision-making in supply chains; system dynamics

Bala Shetty, Professor and Cullen Trust for Higher Education Chair in Business

Research Interests: Nonlinear resource allocation; network optimization; financial engineering; supply chain risk management

Arun Sen, Professor

Research Interests: Data warehouse; data mining; health care: clinical decision support systems, health information exchange, primary care medical home, care coordination, care delivery, and care management

Ravi Sen, Associate Professor

Research Interests: Open source software; electronic commerce; software security

Chelliah Sriskandarajah, Professor and Hugh Roy Cullen Chair in Business Administration

Research Interests: Production planning and scheduling; currency supply chain management; supply chain logistics; healthcare operations; performance evaluation of production systems; computational complexity, design and analysis of algorithms for combinatorial problems

Jon M. Stauffer, Assistant Professor

Research Interests: Optimization; resource allocation; healthcare operations; humanitarian operations

APPENDIX

A Office of Graduate Studies Degree Plans Fact Sheet

Each graduate student must submit an official degree plan to the Office of Graduate and Professional Studies (OGAPS) for approval. The degree plan formally declares your degree objective, the membership of your advisory committee, and the specific courses that you will be required to complete as part of your degree program. You will develop your proposed degree plan in consultation with your advisory committee. The degree plan must be approved by your advisory committee members, your department head and, if applicable, your intercollegiate faculty chairperson.

Completed degree plans must be submitted to OGAPS according to the following regulation with the student meeting whichever of these deadlines falls earliest:

- *following the deadline imposed by the student's college or interdisciplinary degree program.*
- *no later than 90 days prior to the date of the final oral examination or thesis defense for master's students or 90 days prior to the date of the preliminary examination for doctoral students according to deadlines published in the OGAPS calendar each semester for graduation that semester.*

The calendars and deadlines may be found at: <http://ogaps.tamu.edu/Buttons/Calendars>.

Specific rules and limitations on course work and committee membership can be found in the Texas A&M University Graduate Catalog. Once a degree plan is approved by OGAPS, changes in course work or committee membership may be requested by petition to OGAPS. "Petition Forms" may be downloaded from the OGAPS homepage. Changes of major, degree, or department must be requested by submitting a petition and/or a new degree plan/course work petition.

A.1 Degree Plan Checklist

Did you remember to:

<i>Provide your correct Student Identification Number?</i>
<i>Use official course numbers and department abbreviations?</i>
<i>Have all required transcripts sent to the Office of Graduate Admissions?</i>
<i>Confirm eligibility of transfer work?</i>
<i>Confirm that all committee members are members of the Graduate Faculty?</i>
<i>Provide correct names and departmental affiliations of committee members?</i>
<i>Make sure any special appointments have been approved or that the proper paperwork is sent to OGAPS along with the degree plan?</i>
<i>Observe all requirements and limitations on use of course work, outlined in the Graduate Catalog?</i>

A.2 Q&A

Q: When should I submit my degree plan?

A: Students should submit a degree plan prior to the deadline imposed by the student's college, or interdisciplinary degree program, if applicable, and no later than 90 days prior to the date of the final exam (Masters), or the preliminary exam (Doctoral), or by the deadline on the OGAPS calendar.

Q: May I submit my degree plan after the published deadline?

A: Students are advised to meet the deadlines that apply to them. Failure to do so may jeopardize approval for the student to graduate at the end of the desired semester.

Q: How long does it normally take for OGAPS to process degree plans?

A: The processing time depends on when the degree plan is submitted. If the degree plan is submitted near the published deadline for the semester, processing can take 6 to 8 weeks. Degree plans submitted at other times during the semester can be processed in 2 to 4 weeks.

Q: How many hours are needed on my degree plan?

A: Specific requirements vary by degree. Generally, master's non-thesis-option students must carry 36 hours and master's thesis-option students must carry 32 hours for the MS, and 30 hours for the MA, MCS and MEN. Students should check the Graduate Catalog for their specific hour requirements. Doctoral students must carry 96 hours if they do not have a master's degree, and they must carry 64 hours if they have a master's degree. See the Graduate Catalog for additional information.

Q: How should I list courses on my degree plan: alphabetically or by course number?

A: As long as your ordering system is uniform, you may use either system.

Q: How many committee members do I need?

A: Advisory committees for master's degrees must have at least three members, and advisory (dissertation) committees for doctoral degrees must have at least four members. Special appointments to your committee are not included in this count. Your chairperson must be from your department or from your intercollegiate faculty (if applicable), and you must have at least one member from outside of your department. In some departments the student's committee will be comprised of the Graduate Program Director. Your department can tell you which type of committee applies to you.

Q: What do I need to do if changes are needed AFTER my degree plan has been approved?

A: Once your degree plan has been approved, any changes must be requested by submitting the appropriate OGAPS Petition Form. Your signature together with those of your committee, department head and intercollegiate faculty chair (if applicable) are required on the petition.

Q: If one of my committee members is out of town, can someone else sign the degree plan for him or her?

A: Yes, any authorized signer for that member's department or intercollegiate program may sign.

Q: Where can I go for help in completing my degree plan?

A: Start with your graduate advisor in your department. The Graduate Catalog and a copy of your transcript are also useful. You may access the Degree Plan Submission System on

the Internet: <https://OGAPSDpss.tamu.edu/> and login with your NetID. If you still have questions, call the OGAPS staff at (979) 845-3631 or e-mail them at OGAPS@tamu.edu.

Q: Why is it important to have deadlines for the submission of degree plans?

A: The degree plan is to be a “plan” of courses the student and advisory (dissertation) committee members have selected to fulfill the degree requirements. The plan should be formulated early in the student’s graduate career and not serve as a report of courses taken.

- If you have additional questions, you may contact the Office of Graduate and Professional Studies (OGAPS) at 979-845-3631, or you may e-mail the staff at OGAPS@tamu.edu. This supplement should be used only in conjunction with the Graduate Catalog and the Texas A&M University Student Rules.

B Course List and Description

B.1 Required Research Method Courses

Code	Course Name	Recommended Semester
AGEC 641	Operations Research Methods in Agricultural Economics (Description: Theory and practice regarding the application of operations research tools to agricultural economics problem areas. Mainly concentrates on optimization approaches.)	Fall 1st Year
ECON 607	Foundations of Microeconomic Theory (Description: Examination of positive and normative analysis in economic theory; emphasis on policy applications of the theory.)	Fall 1st Year
STAT 630	Overview of Mathematical Statistics (Description: Basic probability theory including distributions of random variables and expectations. Introduction to the theory of statistical inference from the likelihood point of view including maximum likelihood estimation, confidence intervals, and likelihood ratio tests. Introduction to Bayesian methods.)	Fall 1st Year
ISEN 609	Probability for Engineering Decisions (Description: Introduction to probability and stochastic processes for characterization of uncertainty in engineering decisions.)	Spring 1st Year or Fall 2nd Year
STAT 636	Applied Multivariate Analysis (Description: Multivariate extension of the chi-square and t-tests, discrimination and classification procedures; applications to diagnostic problems in biological, medical, anthropological and social research; multivariate analysis of variance, principal component and factor analysis, canonical correlations.)	Spring 1st Year or Fall 2nd Year

B.2 Elective Statistics Courses

Statistics Course List	
STAT 608	Regression Analysis (Description: Multiple, curvilinear, nonlinear, robust, logistic and principal components regression analysis; regression diagnostics, transformations, analysis of covariance.)
STAT 626	Methods in Time Series Analysis (Available in Summer) (Description: Introduction to statistical time series analysis; autocorrelation and spectral characteristics of univariate, autoregressive, moving average models; identification, estimation and forecasting.)
STAT 645	Applied Biostatistics and Data Analysis (Description: Survey of crucial topics in biostatistics; application of regression in biostatistics; analysis of correlated data; logistic and Poisson regression for binary or count data; survival analysis for censored outcomes; design and analysis of clinical trials; sample size calculation by simulation; bootstrap techniques for assessing statistical significance; data analysis using R.)
STAT 647	Spatial Statistics (Description: Spatial correlation and its effects; spatial prediction (kriging); spatial regression; analysis of point patterns (tests for randomness and modelling patterns); subsampling methods for spatial data.)
STAT 652	Statistics in Research II (Available in Summer) (Description: Continuation of STAT 651. Concepts of experimental design, individual treatment comparisons, randomized blocks and factorial experiments, multiple regression, Chi-squared tests and a brief introduction to covariance, non-parametric methods and sample surveys.)
STAT 653	Statistics in Research III (Description: Advanced topics in ANOVA; analysis of covariance; and regression analysis including analysis of messy data; non-linear regression; logistic and weighted regression; diagnostics and model building; emphasis on concepts; computing and interpretation.)
STAT 659	Applied Categorical Data Analysis (Available in Summer) (Description: Introduction to analysis and interpretation of categorical data using ANOVA and regression analogs; includes contingency tables, loglinear models, logistic regression; use of computer software such as SAS, GLIM, SPSSX.)

B.3 Elective Analytical-focused Courses

Analytical-focused Course List	
ECON 629	Microeconomic Theory I (Description: Core ideas in theoretical microeconomics; theory of consumer and firm; theory of competitive output and factor markets.)
ECON 630	Microeconomic Theory II (Description: Advanced treatment of consumer and production theory; game theory; general equilibrium and welfare analysis.)
ECON 631	Microeconomic Theory III (Description: Advanced theoretical microeconomics; comprehensive study of consumer and producer theory, general equilibrium and welfare, and failures of the competitive model.)
ECON 659	Behavioral Game Theory (Description: Static and dynamic games of complete and incomplete information and other advanced topics in game theory.)
AGEC 642	Dynamic Optimization in Agricultural and Applied Economics (Description: Economics of problems of dynamic optimization, focusing on numerical and analytical methods; applications in a wide range of issues related to agricultural and applied economics are considered.)
AGEC 643	Applied Simulation in Agricultural Economics (Description: Design, construction, validation and use of Monte Carlo simulation models for risk analysis of economic systems; parameter estimation and simulation of multivariate probability distributions in econometric and behavioral models used for business and policy analysis under risk.)
ISEN 615	Production and Inventory Control (Description: Model development for inventory management and for production planning; production control models for line balancing, lot sizing, dispatching, scheduling, releasing, kitting, MRP and just-in-time with treatment of flexible manufacturing and assembly.)
ISEN 616	Design and Analysis of Industrial Experiments (Description: Fundamental theory, concepts and procedures required for industrial experimental design, statistical data analysis, and model building, with emphasis on engineering formulations and applications. One-factor experiments with and without restrictions on randomization, treatment comparison procedures, Latin and other squares, factorial experiments, full and fractional two-level factorial experiments, blocking in factorial designs, response surface methodologies and introduction to Taguchi methods.)
ISEN 621	Heuristic Optimization (Description: Focus on heuristic optimization methods that search beyond local optima; includes neighborhood search methods and advanced search strategies such as genetic algorithms, simulated annealing, neural networks, tabu search, and greedy randomized adaptive search procedures.)
ISEN 622	Linear Programming (Description: Development of the mathematics and algorithms associated with linear programming; convex sets and cones, polyhedral sets, duality theory, sensitivity analysis, simplex, revised simplex and dual simplex methods; also covered are bounded variables, column generation, decomposition, integer programming; computer assignment.)
ISEN 623	Nonlinear and Dynamic Programming (Description: Understanding of algorithms for nonlinear optimization; development of optimality conditions and different types of algorithms for unconstrained and constrained problems; formulation and solution of many types of discrete dynamic programming problems.)
ISEN 625	Simulation Methods and Applications (Description: Fundamental methodologies of simulation modeling; random number and variate generation, statistical analysis of model output, and discrete event modeling using a commercial simulation language.)
ISEN 636	Large-Scale Stochastic Optimization (Description: Introduction to models, theory and computational methods for large-scale stochastic optimization including decomposition-coordination algorithms for stochastic programming such as generalized Benders decomposition and resource-price directive methods; emphasis on practical algorithm implementation and computational experimentation.)

B.4 Elective Empirical-focused Courses

Empirical-focused Course List	
ECON 649	Industrial Organization I (Description: Industry structure, conduct and performance described and analyzed with tools of microeconomics.)
ECON 650	Industrial Organization II (Description: Behavior of markets operating under conditions of imperfect information; construction and scientific evaluation of models designed to explain industry performance.)
ECMT 675	Econometrics I (Description: Empirical distributions of economic variables; elementary discrete and continuous distributions expressing econometric hypotheses, distributions of estimators and test statistics.)
ECMT 676	Econometrics II (Description: Use of statistics in economic theory as device for testing hypotheses, formulation of concepts and economic forecasting; regression analysis in economics problems, heteroskedasticity, autocorrelation, distributed lags, regressions with lagged dependent variable, dummy variables and in introduction to multi-equations economics models.)
ECMT 677	Applied Microeconometrics (Description: Estimation methods applied to economic problems; techniques include single and simultaneous equations models; general linear model in matrix form; tests of linear restrictions; Wald, Likelihood Ratio and Lagrange Multiplier tests; seemingly unrelated regressions, simultaneous equations identification and estimation; missing observations, errors in variables and non-linear estimation in economics problems.)
ECMT 678	Nonparametric Econometrics (Description: Continuation of ECMT 677. Estimation methods applied to economic problems; techniques include qualitative limited dependent variables; pooled time-series and cross-section data; instrumental variables in economics problems. May repeated for credit.)
ECMT 679	Time Series Econometrics (Description: Advanced topics in time series econometrics, including ARMA models, unit roots and cointegration.)
AGEC 622	Agribusiness Analysis and Forecasting (Description: Design, construction, use and evaluation of simulation, forecasting and optimization models to solve applied problems confronting decision makers in agribusiness.)
AGEC 661	Applied Econometric Methods in Agriculture (Description: Application of econometric methods in a theoretical framework for the analysis of agricultural markets and farm firm behavior; emphasis on specifying and estimating agricultural production and demand functions and agricultural sector models; selected topics according to student needs.)
EPSY 651	Theory of Structural Equation Modeling (Description: Introduction to the theory and application of structural equation modeling.)
EPSY 652	Theory of Hierarchical Linear Models (Description: Introduction to the theory and application of hierarchical linear models.)
EPSY 653	Advanced Structural Equation Modeling (Description: Advanced topics of structural equation models; includes exploratory factor analysis under the structural equation modeling framework, testing factorial invariance, structural equation models with categorical observed variables, multilevel structural equation models, latent growth models, and growth mixture models.)
MGMT 673	Advanced Research Methods in Management (Description: Introduces PhD students in Management to the multivariate methods commonly used in management research. Applications emphasized; journal publications; projects and critiques required.)

C Program Progression Chart

