

GRADUATE STUDENT HANDBOOK

**DEPARTMENT OF BUSINESS ANALYTICS
TIPPIE COLLEGE OF BUSINESS
UNIVERSITY OF IOWA**

Version: Fall 2023

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I. Introduction

This document is a guide for students pursuing, or wishing to pursue, a Ph.D. degree in the Department of Business Analytics at the University of Iowa. It describes degree requirements, departmental policies, and financial-aid opportunities. It supplements the *Manual of Rules and Regulations of the Graduate College* and the *General Catalog* of the University of Iowa. The latest versions of these documents can be found online from the University's main web site, <http://www.uiowa.edu>. Additional information about the Department, including the most recent version of this document, may be found at the Department's site, <https://tippie.uiowa.edu/business-analytics>.

The policies and procedures outlined in this document are effective fall semester 2023. Continuing students may choose to follow the procedures that were in effect during their first year, if they were changed by this document.

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II. Admissions

Students seeking admission to the Ph.D. program in Business Analytics are subject to the both the minimum standards set by the Graduate College and specific departmental standards. The basic requirements include:

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

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

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

III. Support

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

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

A. Teaching Assistantships

Teaching assistantships (TAs) are the most common form of financial aid. These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers.

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

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

B. Research Assistantships

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

C. Tuition

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

D. Fellowships

1. First Year Fellowships

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

2. Graduate College Recruitment Fellowships

Exceptional applicants may be offered a recruitment fellowship. These fellowships are available to incoming students (not returning students) from the Graduate College and are awarded competitively based on applications submitted by the Department. They provide a stipend supplement for up to five years and summer support for up to four summer terms.

3. Summer Fellowships

Students who are post-comprehensive exam are eligible for the Graduate College's Summer Fellowship program. This pays more than a department award and includes tuition for up to 2 hours. The application includes a proposal by the student and a recommendation from their advisor. All post-comprehensive exam students **must apply** for the Graduate College Summer Fellowship before they can be considered for departmental support. Details on how to apply can be found at: <http://www.grad.uiowa.edu/gc-post-comprehensive-summer-research-awards>.

The Department also offers a summer research fellowship to many continuing students. This award is typically in the range of \$3000 - \$3500 per summer. Details for applying for this award can be found in the Appendix. Results from summer research fellowships will be evaluated by the students' advisor(s) during the following fall semester. Students who do not make satisfactory progress during the period of the fellowship will not be offered future summer fellowships.

4. Graduate College Research Fellowships

Students who are post-comprehensive exam are eligible to apply for research fellowships that allow them to be released from teaching to concentrate on research. All research awards are awarded for one semester. There are currently two options:

- a. Post-comprehensive research award (<http://www.grad.uiowa.edu/gc-post-comprehensive-research-awards>) is for the semester after completing the comprehensive exam (dates online). The application includes a proposal by the student and two letters of support (one from an advisor and one from the Director of Graduate Studies).
- b. Ballard and Seashore dissertation fellowship (<http://www.grad.uiowa.edu/ballard-and-seashore-dissertation-year-fellowships>) is for students with a high likelihood of completion within one semester of the fellowship period. The application includes a proposal by the student and three letters of support (one from an advisor, one from a committee member, and one from the Director of Graduate Studies).

5. Departmental Research Fellowships

Departmental research fellowships are also offered each semester unless otherwise announced. These positions provide 25%-50% salary support and are awarded on a competitive basis. See the Appendix for details on the requirements and how to apply.

E. Travel

The Department provides funds for graduate students to attend appropriate academic conferences for the purpose of presenting their research (e.g., giving a talk or presenting a poster). Awards of up to \$,1000 per academic year (pre-comprehensive exam) or \$,1750 (post-comprehensive exam) are available. Students may use these funds to make multiple trips, but the Department will pay only up to this amount. Expenses are limited to travel, conference registration, lodging, and food. The application procedure for departmental awards is in the Appendix.

IV. Ph.D. Degree Requirements

The Ph.D. program in Business Analytics prepares students for research, teaching, and other scholarly endeavors in an academic or industrial setting. The coursework requirements emphasize applied mathematics and applied computing, along with a grounding in business processes. The program also requires a series of written and oral examinations, culminating in the production and defense of a dissertation describing original research results. As a general rule, it is expected that a student will complete at least one paper and have a second paper in draft form based on their research results by the time of their defense. The requirements described here are in addition to the University-wide requirements for the Ph.D. degree described in the *Manual of Rules and Regulations of the Graduate College*.

A. Advising

Every Ph.D. student must have a faculty advisor from the Department of Business Analytics. Upon admission, each student is assigned an initial, temporary academic advisor. During their first one to two years in the program, it is expected that the student will choose a faculty member whose research interests align with their own to serve as academic and research advisor and chair of the student's thesis committee. It is expected that a student will complete a Plan of Study form (see Appendix) in consultation with his/her advisor every semester and submit the completed form to the Department. This form should include the classes taken, along with the grades received, and the classes the student plans to take in the upcoming semester.

The advisor/advisee relationship requires the consent of both parties and can be terminated by either. To change advisors, the student needs to complete the "Change of Advisor Form" (available at the end of this handbook) with appropriate signatures. The

completed form must be submitted to the Director of Graduate Studies and Ph.D. Program Coordinator before the change is made official.

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

Students must meet annually with their advisor to discuss their progress over the past year and plans for the next year. At this meeting, the student and advisor should discuss the Plan of Study (in the appendix) and fill out the Annual Milestone Report (also in the appendix).

B. Course Requirements

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

Interdepartmental Core Requirement (3 hours):

One Ph.D. course from other College of Business departments 3
 Suggestions (but many others may be used):

Economics	Marketing	Finance
ECON:5100 Microeconomics I	MKTG:7850 Seminar in Marketing	FIN:7120 Seminar in Corp. Finance
ECON:5800 Econometrics		

Departmental Core Requirements (6 hours):

Management Information Systems 3
 BAIS:4480 Knowledge Discovery or
 BAIS:6800/CS:4440 Web Mining

Quantitative Methods/Operations Management 3
 BAIS:6600 Linear Programming or
 BAIS:7900 Supply Chain Management

Other courses in these areas may be substituted with departmental approval.

Research Methodology (9 hours):

STAT:3100 or STAT:4100 Mathematical Statistics I 3

Choose two of the following: 6
 ECON:5100 Microeconomics I

BIOS:6650 Causal Inference
 IE:6380 Deep Learning
 BAIS:4220 Advanced Database Management and Big Data
 BAIS:6600 Linear Programming
 BAIS:6900 Heuristic Search Methods
 BAIS:6700 Discrete Optimization
 MATH:4820 Optimization Techniques
 STAT:3101 or STAT:4101 Mathematical Statistics II
 STAT:5210 Applied Statistics I
 STAT:6300 Probability and Stochastic Processes I
 STAT:6301 Probability and Stochastic Processes II
 STAT:3210 Experimental Design & Analysis
 STAT:6540 Applied Multivariate Analysis
 CS:5350 Design & Analysis of Algorithms
 Other applied mathematics or computing courses may be substituted with departmental approval.

Major area of study (12 hours)

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

Suggested major area of study courses:

Information Systems	Operations Management	Quantitative Methods
BAIS:4480 Knowledge Discovery	BAIS:6300 Dynamic Programming	BAIS:6300 Dynamic Programming
BAIS:6500 Social Network Analytics-Models and Algorithms	BAIS:6700 Discrete Optimization	BAIS:6700 Discrete Optimization
BAIS:6800 Web Mining	BAIS:6900 Heuristic Search	BAIS:6900 Heuristic Search
BAIS:7000 Spatial Big Data	BAIS:7000 Convex Analysis and Optimization	BAIS:7000 Convex Analysis and Optimization I
BAIS:7000 Machine Learning	BAIS:7900 Supply Chain Management	IE:6720 Nonlinear Programming
	STAT:6300 Applied Stochastic Processes	IE:6750 Stochastic Optimization
		STAT:5200 Applied Statistics 1

Suggested electives for majors:

Information Systems	Operations Management	Quantitative Methods
BAIS:6700 Discrete Optimization	CS:5350 Design & Analysis of Algorithms	CS:5350 Design & Analysis of Algorithms
BAIS:6900 Heuristic Search	MATH:4820 Optimization Techniques	CS:4700 High Performance and Parallel Computing
CS:5350 Design and Analysis of Algorithms	MATH:4010 Basic Analysis	MATH:4820 Optimization Techniques

STAT:4520 Bayesian Statistics	STAT:4510 Regression, Time Series, and Forecasting	MATH:4010 Basic Analysis
STAT:4510 Regression, Time Series, and Forecasting	IE:3610 Stochastic Models	MATH:5800 Numerical Analysis
STAT:3200 Applied Linear Regression	IE:3700 Operations Research	MATH:4050 Introduction to Discrete Mathematics
STAT:6560 Applied Time Series Analysis	IE:6770 Game Theory	MATH:4060 Discrete Mathematical Models
CS:4420 Artificial Intelligence	IE:6750 Stochastic Optimization	MATH:4610 Continuous Mathematical Models
STAT:6540 Applied Multivariate Statistics	IE:3750 Digital Systems Simulation	ECE:5330 Graph Algorithms & Combinatorial Optimization
CS:4980 Intro to Machine Learning or Big Data Technology	IE:6780 Financial Engineering & Optimization	IE:6780 Financial Engineering & Optimization
IE:4172 Big Data Analytics	IE:6720 Nonlinear Programming	BAIS:4480 Knowledge Discovery
BAIS:6600 Linear Programming		BAIS:7900 Supply Chain Management

Other courses may be added or substituted with departmental approval.

Minor area of study (9 hours)

Major and minor areas combined must total at least 21 hours. Minor areas outside of the Department or even outside of the Tippie College of Business are often appropriate. Examples of such areas are: Finance, Computer Science, Statistics, and Industrial Engineering. Minor courses from MIS, OM or QM can be selected from the major and elective courses listed above.

Thesis and elective hours (33 hours)

In order to fulfill the 72-hour requirement for the Ph.D. degree, students must complete another 33 hours of coursework. These can be a combination of thesis hours (BAIS:7975), elective courses, directed readings, and approved transfer credits, subject to departmental approval. Note that a student is only eligible to take thesis hours once they are post-comprehensive exam.

Transfer Credits

Students with prior graduate coursework can request the transfer of some of these credits to reduce the 72 semester hours required for the Ph.D. degree. Cases are considered individually, but a transfer of 9-15 hours for students with a Master's Degree in a technical area into the "thesis and elective hours" is typical. Transfer credits are limited to 15 hours. Students wishing to transfer credits should submit a petition to the College of Business Ph.D. program coordinator.

C. Exams

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

1. Qualifying Exam

The qualifying exam is an oral examination on a research topic selected and studied by the student with faculty assistance during the summer of the first year. An examination committee of three Business Analytics faculty in total (selected by the student and his/her advisor) will conduct the examination. The exam typically requires two components: 1) A written report detailing a literature review and research work completed by the student, and 2) an oral presentation of this work. The committee will use the outcome of the oral examination and course grades earned during the first year to evaluate the student. This exam must be taken by the end of the fall semester of the second year. The written report should be given to the committee approximately two weeks before the exam date. Students failing the examination must retake it no later than the end of the spring semester of the second year. Students should bring a completed copy of their plan of study form and the qualifying exam form to the exam. These forms are in the Appendix.

2. Comprehensive Exam

A written comprehensive examination will be given in the fall of the third year. The student, in consultation with his/her advisor, chooses three courses over which to be tested. These should come from the list of major courses but may also be core courses or electives as approved by the advisor. The exam is scheduled for two days. On the first day, there is a 4-hour, closed-book exam containing questions from two of three courses. On the second day, there is a 2-hour, closed-book exam containing questions from the third course. Each course will contribute two questions to the exam, with the second question being more advanced than the first. Each question will be submitted and graded by the respective course instructor, and the results of the two questions will be given the final grade of *satisfactory*, *unsatisfactory*, or *reservations*. A vote of *reservations* indicates that the instructor feels the deficiencies were modest and can be readily rectified.

The Exam Committee will consist of the three instructors for the courses, the student's advisor, and one member of the Graduate Committee to create a total of at least four members (as required by the Graduate College). The student's advisor will officially be the chair of the committee. In the rare situation where the union of

these groups is less than four faculty members, another faculty member from the Department can be added. As required by the Graduate College, at least three of the committee members must be the members of University of Iowa tenure-track faculty, where at least two of them must be from the Department of Business Analytics. The Exam Committee will meet after the exam and decide on a committee report of satisfactory, unsatisfactory, or reservations for the entire exam. Two “unsatisfactory” votes by instructors will necessarily make the committee report unsatisfactory. If there are two or more votes of “reservations”, a list of required actions by the student to correct the deficiencies and deadlines must be recorded and submitted to the Graduate College. These actions may include the (re-)taking of a course, re-taking of one (or more) parts of the exam, etc. If the student satisfies the required actions in the specified period of time, the committee report will be changed to satisfactory. If the actions are not satisfied on time or if the actions are not of sufficient quality, the exam grade will be recorded as “unsatisfactory”. If the student needs to re-take the exam, he or she must do so by the date specified by the Exam Committee but no sooner than four months after the first exam. A student may not do their proposal defense until a grade of “satisfactory” on this exam is achieved. A student can take the exam at most 2 times.

When a student has achieved a grade of “satisfactory” on the comprehensive exam and completed all of the required courses in research methodology and in the major area of study, the student is advanced to Ph.D. candidacy and is considered “post-comprehensive exam.” Students preparing for this exam should consult the “Comprehensive Exam Procedures” in the Appendix.

3. Proposal Defense

The student must prepare a written dissertation proposal and defend it in an oral examination. It is suggested that the committee of at least four faculty members for this examination consist of those most appropriate for supervising the dissertation and for administering the final oral dissertation-defense examination (which may be different than the comprehensive exam committee). For details on the committee for the final defense, see below. The proposal defense may only occur once a student is advanced to Ph.D. candidacy, but it may occur within the same semester. Prior to the proposal defense, the student must have completed all required courses in the departmental core, research methodology, and the major area of study. The proposal defense must occur at least one semester prior to the final dissertation defense.

Students preparing for this exam should consult the “Proposal Defense Procedures” in the Appendix. The student will distribute the written document to the committee a minimum of two weeks prior to the proposal date.

4. Final Dissertation Defense

The dissertation should be defended in the spring of the fourth or fifth year. The dissertation must describe original research performed by the Ph.D. candidate. A committee of at least four faculty members is proposed by the student and his/her advisor and approved by the Department. The committee must satisfy all of the following rules at the same time:

- (1) At least three of the committee members must be the members of University of Iowa tenure-track faculty, among whom at least two must be from the Department of Business Analytics (required by the Graduate College).
- (2) The committee must have a majority of members from the Department of Business Analytics (including both tenure-track and non-tenure-track faculty)
- (3) The committee must have at least one member from outside the College of Business.

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

D. Other Milestones

It is strongly recommended that students publish papers while getting their Ph.D.. It will help with job placement upon graduation. In terms of milestones, it is recommended that students submit their first paper by the end of the fall semester of their third year. It is recommended that students submit their second paper during the fall of the fourth year. At least one of these should be submitted to a peer-reviewed journal or a conference that is peer-reviewed with published proceedings (such as ACM/IEEE). Students should try to complete a third paper near the time of their thesis defense. This timeline is just a suggestion, as research may move faster or slower than expected.

F. Paper Award

The Department will provide an annual best paper award for a paper written by a Ph.D. student. The paper must be based on work done at the University of Iowa and may include co-authors, but the student must be the main contributor. The paper must be submitted to

a peer-reviewed journal or conference that is peer-reviewed with published proceedings. The paper must be in the review process at the time of application or have been accepted within one calendar year. The same paper cannot receive the award more than once. The papers will be reviewed by a committee. The winner will receive a prize and present a seminar about the paper.

E. Typical Degree Plan

Milestones A-D are summarized in the following “typical degree plan”.

Semester	Courses	Typical Milestones
Year 1, fall semester	Usually 3 from department core, research methodology, and major courses	Identify 6 faculty and hold introductory meetings with them.
Year 1, spring semester	Usually 3 from department core, research methodology, and major courses	Write up summary of faculty meetings. Devise summer research plan and present it.
Year 1, summer		Research with advisor
Year 2, fall semester	Usually 3	Qualifying exam report and presentation
Year 2, spring	Usually 2-3	Research with advisor
Year 2, summer		Research with advisor and take comprehensive exam at end of summer
Year 3, fall	Usually 1-2	Submit first paper, apply grad college fellowship
Year 3, spring	Usually 1-2, 0 if fellowship	Research with advisor
Year 3, summer		Research with advisor
Year 4	Usually 1	Do thesis proposal and submit second paper in fall
Year 5	Usually 0 (or thesis hours only)	Give department seminar, apply for final year graduate college fellowship, work on third paper, do thesis defense

F. Academic Review and Dismissal

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

G. Milestone Report

In the spring of their second and subsequent years in the programs, students must submit a milestone report. This requires a meeting with the advisor to discuss what milestones have been accomplished and which they are planning to accomplish soon. It also allows the student and their advisor to discuss what would help them make progress. Details are in the Appendix.

H. Seminar Attendance

Students should attend the department seminars unless they are in class or teaching at that time. Attendance at these seminars may be considered in the decision process for department awards such as summer fellowships and research assistantships.

V. MA Degree

In addition to the Ph.D. the Department also awards Master of Arts degrees in Business Administration. This degree does not have a separate program and is awarded only to students who fail to complete the Ph.D.. The MA is a coursework-only degree and is subject to the requirements of the Graduate College, as found in the *Rules and Regulations of the Graduate College* manual. The major requirement is the completion of 35 semester hours of graduate coursework beyond the bachelor's degree. In addition, the Department requires that the student complete at least one course from each of the three Business Analytics functional areas: Information Systems, Operations Management, and Quantitative Methods.

VI. Appendix

The following pages contain standard forms and checklists relevant to the graduate program in Business Analytics. They are:

1. Ph.D. plan of study checklist
2. Requirements for first-year fellowship
3. Qualifying exam form
4. Comprehensive exam procedures
5. Proposal defense procedures
6. Travel funds request procedure
7. Application procedures for summer fellowship
8. Application procedures for departmental research fellowships
9. Milestone report

PH.D. PLAN OF STUDY CHECKLIST

Last Name _____ First Name _____ Advisor _____

<u>COURSE NO.</u>	<u>COURSE TITLE</u>	<u>SEMESTER/YEAR</u>	<u>GRADE</u>	<u>S.H.</u>
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1. Interdepartmental Core Requirements (3 hours)

_____	Ph.D. course from Marketing, Econ, Finance, Mgmt & Org, or Accounting	_____	_____	3 s.h.
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2. Departmental Core Requirements* (6 hours)

_____	<u>Information Systems 3 s.h.</u> BAIS:4480 or BAIS:6800/CS:4440 Other MIS course with departmental approval	_____	_____	3 s.h.
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_____	<u>Quant Methods/Operations Mgmt 3 s.h.</u> BAIS:6600 or BAIS:7900 Other OM or quant course with departmental approval	_____	_____	3 s.h.
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3. Research Methodology (9 hours):**

STAT:3100 or 4100 Mathematical Statistics I	_____	_____	3 s.h.
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Choose two of the following courses:

ECON:5100	Microeconomics I	_____	_____	3 s.h.
IE:6380	Deep Learning	_____	_____	3 s.h.
BAIS:4220	Adv Database Mgmt and Big Data	_____	_____	3 s.h.
BAIS:6600	Linear Programming	_____	_____	3 s.h.
BAIS:6900	Heuristic Search Methods	_____	_____	3 s.h.
BAIS:6700	Discrete Optimization	_____	_____	3 s.h.
MATH:4820	Optimization Techniques	_____	_____	3 s.h.
STAT:6300	Applied Stochastic Process I	_____	_____	3 s.h.
STAT:6301	Applied Stochastic Process II	_____	_____	3 s.h.
STAT:3210	Experimental Design & Anal	_____	_____	3 s.h.
STAT:3101/4101	Mathematical Statistics II	_____	_____	3 s.h.
STAT:5210	Applied Statistics I	_____	_____	3 s.h.
STAT:6540	Applied Multivariate Analysis	_____	_____	3 s.h.
CS:5350	Design & Analysis of Algorithms	_____	_____	3 s.h.

4. Major Area of Study* (12 hours) _____

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

Requirements for First-year Fellowships Department of Business Analytics

Incoming Ph.D. students in the Department of Business Analytics will receive two semesters of 1/4-time support through a fellowship program. The intent of this fellowship is to reduce the teaching requirements for the students, thus allowing them to acquaint themselves with the research of the departmental faculty and prompt students to begin identifying potential research projects. To facilitate the genesis of their research careers, the following milestones will be observed for all students receiving this support.

Deadline	Milestone
October 1	Student must submit to the Department <u>a list of no less than six faculty members</u> whose research is relevant to areas of interest. This list, constructed in consultation with the student's initially-assigned coursework advisor, should consist primarily of Business Analytics faculty, but may include faculty from other UI departments.
End of Fall Semester	Student <u>must have met with each faculty member</u> on her/his list to discuss research and assign introductory readings.
Feb 1	Student must submit to the Department <u>a report summarizing the findings</u> from her/his meetings with faculty and the associated readings. This report should include a brief description of the research area for each of the faculty on your list, along with brief summaries and thoughts about each of the assigned papers.
End of Spring Semester	Student must give a <u>short presentation (15 – 20 minutes) detailing: (a) what she/he has learned in meetings with faculty,</u> and/or (b) what topic they have decided to pursue at this juncture and how it relates to the research of the various departmental faculty. You may email the DGS for copies of old presentations.

Report of Qualifying Exam: Business Analytics Ph.D.

The examining committee reports as follows on _____
Name _____
the qualifying exam in Business Analytics.

Committee Members	Satisfactory	Unsatisfactory
Chair: _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Place, date and hour of examination _____

First Failure _____
(date)

Second Failure _____
(date)

Date of Report _____ Signed _____

Comprehensive Exam Procedures

- 1) Schedule a date for your two part exam with the Director of Graduate Studies (DGS). Exams are typically given near the beginning of a semester (August or January). Every attempt is made to coordinate the date of all students taking the exam in a given year.
- 2) Determine, in consultation with your advisor, the list of three courses that will serve as your Major as well as any additional comprehensive exam committee members.
- 3) Contact your instructor from each of the three courses and get their informal agreement to write and grade two questions for the exam.
- 4) Contact the additional comprehensive exam committee members to see if they are willing to serve on your committee.
- 5) **At least six weeks before the exam**, send the Department Administrator the following information:
 - a) The numbers and names of the three courses
 - b) The name, campus address, and email address of each instructor
 - c) The semester and year in which you took the course.
 - d) The names of the additional comprehensive exam committee members
 - e) A Plan of Study showing that you completed the required courses in research methodology and the major area of study (or indicating when the student plans to complete them).

Proposal Defense Procedures

- 1) Obtain the following materials from the Business Analytics Office:
 - Copy of your latest transcript
 - Copy of your current registration
 - Proposal completion form

- 2) Meet with your advisor to select a committee of at least four faculty members that are most appropriate for supervising the dissertation.

- 3) Have the Ph.D. Program Coordinator reserve a room for a two-hour time slot. The proposal defense must occur at least one semester prior to the final dissertation defense and after a student has reached Ph.D. candidacy.

- 4) At the proposal defense, bring the transcript, copy of current registration, proposal completion form, and your plan of study. The plan of study should indicate that you have completed the required courses in the departmental core, research methodology, and the major area of study.

Travel Funds Request Procedure

To use department funds for travel, you must request the use of funds **before** you travel. You must also be giving a talk or presenting a poster for any trips. Contact the Director of Graduate Studies (DGS) for exceptions. The process is as follows:

1. Email Tippie-west-asst@uiowa before purchasing airline tickets or registering for a conference. Send them
 - a. Dates of travel, conference, location of conference
 - b. Estimate of trip cost. Students should do early registration and try to find roommates whenever possible to keep costs low.
 - c. If the trip is over the student's balance of department funds, they should also state if there is a secondary source to cover the balance so it can be entered into the trip request. For example, the Department Administrators will indicate on the trip request something like "pay up to \$1000" or "pay up to \$1000 on student travel account and charge rest to (advisor) Professor X".
2. Potential options for additional funding include:
 - a. Applying for GSS travel awards (<http://gss.grad.uiowa.edu/funding/gss-travel-funds>). There are windows associated with travel support such that students often must complete travel before the window. Limits are \$300 regional/\$750 national/\$1000 international.
 - b. Applying for WISE funds (<http://www.uiowa.edu/wise/dr-eunice-beam-wise-travel-grants>). For women only and conference must be selective (i.e. not INFORMS).
 - c. Asking your advisor to pay the balance or for additional trips
3. After your travel, bring or email your receipts to Shared Services (W210, uss-business@uiowa.edu). Reimbursement is only for food, conference registration, and travel. There are daily limits on reimbursement for food depending on location of travel. Receipts should show proof of payment, such as the last four digits of the credit card number or page from a bank or credit card statement showing payment.

Application Procedures for Summer Merit Fellowships

Applications for the Business Analytics Summer Merit Fellowship must be submitted to the Department Administrator by the specified date and time.

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

Qualifying Procedure

Awards will be based on meeting the following criteria:

- (1) A two page report on research progress plus specific research goals for summer.
- (2) Students who are post-qualifying exam must have applied for the Graduate College Summer Fellowship and not been awarded the fellowship.
- (3) The student's latest Study Plan (only for first years who are not doing milestone report)
- (4) To receive funding, the student should be able to regularly meet with their advisor on campus over the summer.
- (5) Failure to make significant progress on summer research goals will result in the student being ineligible for support in future summers.
- (6) Students are eligible in the summers following the first 4 years in program. Students in later years may be funded, depending on budgetary constraints, on a case-by-case basis.
- (7) A faculty research advisor must read and approve the application.

DEPARTMENTAL RESEARCH FELLOWSHIPS DEPARTMENT OF BUSINESS ANALYTICS

Unless otherwise announced, the Department of Business Analytics will award departmental Research Fellowship positions each semester. This position will provide 25% -50% salary support t. They will be awarded competitively.

Applications for the Business Analytics Research Fellowships must be submitted to the Department Administrator by the specified date and time.

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

1. full-time or equivalent (registration during the semester of the award), resident Ph.D. student in the Department of Business Analytics,
2. in at least his/her third semester of full-time enrollment during semester of the award

Priority will be given to students who have a 50% TA appointment in the current semester. Having had a departmental fellowship before does not exclude a student from consideration. Applications from all students who meet the basic requirements will be carefully considered.

Students who wish to be considered will submit a research proposal of no more than three pages to the Department. It will include summaries of the following points:

- a description of a research problem
- a summary of research progress
- a statement of the proposed work
- a description of expected deliverables / results
- a statement on whether they are post-comp or not. If they are not, they should detail when they plan to take the exam. If they are post-comp, they need to list if and when they have won Graduate College Fellowships.
- a statement on how they were funded in the current semester (if 50% TA, 25% TA, advisor-supported RA, GC award, etc.)
- a list of research seminars (e.g. faculty candidate seminars) attended during the most recent school year

Any student who receives a fellowship must also submit a proposal to the Graduate College's Jakobsen conference to present their results. This conference is held in the spring, so students with a fall RA should be able to submit for the conference within that academic school year. For students with a spring RA, they can submit a proposal during the semester of their RA or in the next academic year.

The proposal **must** be approved by a supervisor from the department faculty before it will be considered. Proposals will be judged by the Department's Ph.D. Committee.

Annual Milestone Report

Last Name _____ First Name _____ Advisor _____

1. Schedule a time with your advisor to discuss your annual milestone report.
2. Fill out or update plan of study checklist. Discuss any planning issues with your advisor in your milestone meeting.
3. Send your advisor the following questions ahead of your meeting and discuss them together in your meeting.
4. Either you or your advisor should send an electronic or hard copy of the completed milestone sheet and current plan of study to the Director of Graduate Studies by 5:00 pm on May 15 of each year. These will be reviewed by the Department Graduate Committee.

Date met with advisor _____

Semester	Courses	Typical Milestones
Year 1, fall semester	Usually 3 from department core, research methodology, and major courses	Identify 6 faculty and hold introductory meetings with them.
Year 1, spring semester	Usually 3 from department core, research methodology, and major courses	Write up summary of faculty meetings. Devise summer research plan and present it.
Year 1, summer		Research with advisor
Year 2, fall semester	Usually 3	Qualifying exam report and presentation
Year 2, spring	Usually 2-3	Research with advisor
Year 2, summer		Research with advisor and take comprehensive exam at end of summer
Year 3, fall	Usually 1-2	Submit first paper, apply grad college fellowship
Year 3, spring	Usually 1-2, 0 if fellowship	Research with advisor
Year 3, summer		Research with advisor
Year 4	Usually 1	Do thesis proposal and submit second paper in fall
Year 5	Usually 0 (or thesis hours only)	Give department seminar, apply for final year graduate college fellowship, work on third paper, do thesis defense

Reflecting back, what are some milestones achieved in the last year in terms of your progress towards the Ph.D.? (e.g. passed qualifying exam, passed comps, passed proposal, submitted paper, presented at conference, papers accepted)

What are the specific goals for this summer and the next school year? (e.g. finish coding algorithm this summer, submit second paper by October, etc.)

What are some things to work on to help make better progress? (e.g. better technical writing skills, faster turnaround of research assignments, etc.)

What are some resources needed to help with progress? (more courses on x, more money for y, nothing needed, etc.)

Change of Advisor Form: Business Analytics Ph.D.

The official advisor for _____ is being changed as follows:

Advisor	Signature	Date
New: _____	_____	_____
Previous: _____	_____	_____

Student Signature: _____ Date: _____

Please email a copy of this form to the Director of Graduate Studies and Ph.D. Program Coordinator before the change can be finalized.