



FLORIDA STATE UNIVERSITY  
COLLEGE OF BUSINESS  
*Graduate Programs Office*

**Master of Science in  
Business Analytics**

**Program Handbook  
2023-2024**

## TABLE OF CONTENTS

<b>DEAN’S OFFICE, DEPARTMENT, AND GRADUATE PROGRAMS CONTACT INFORMATION</b>	<b>1</b>
<i>Dean’s Office – RBA 314</i>	
<i>BAISSC Department Office – RBB 325</i>	
<i>Graduate Programs Office – RBB 336</i>	
<b>GENERAL GRADUATE POLICIES AT FSU</b>	<b>2</b>
<i>University Attendance Policy</i>	
<i>Academic Honor Policy</i>	
<i>Americans with Disabilities Act</i>	
<b>GRADUATE ACADEMIC CREDIT</b>	<b>4</b>
<i>Transfer Credit</i>	
<i>Grade Appeals System</i>	
<i>Incomplete Grade Policy</i>	
<i>Recency of Work</i>	
<b>GRADUATE ACADEMIC RETENTION</b>	<b>6</b>
<i>Performance Standards</i>	
<i>Review Procedure</i>	
<i>Readmission Procedure</i>	
<b>MS-BA PROGRAM OVERVIEW</b>	<b>8</b>
<b>MAJOR COURSE REQUIREMENTS FOR MS-BA DEGREES</b>	<b>9</b>
<b>COURSE SCHEDULE AND DESCRIPTIONS</b>	<b>10</b>
<b>FINANCIAL AID AND FUNDING</b>	<b>13</b>

## CONTACT INFORMATION

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## GENERAL GRADUATE POLICIES

### **University Attendance Policy**

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

### **Academic Honor Policy**

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/academic-resources/academic-integrity-and-grievances/academic-honor-policy>)

### **Americans with Disabilities Act**

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:

- (1) must register with and provide documentation to the Office of Accessibility Services (OAS);
- (2) must provide a letter from OAS to the instructor indicating the need for accommodation and what type; and,
- (3) should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, please contact:

Office of Accessibility Services  
874 Traditions Way  
108 Student Services Building  
Florida State University  
Tallahassee, FL 32306-4167

(850) 644-9566 (voice)  
(850) 644-8504 (TDD)  
oas@fsu.edu  
<https://dsst.fsu.edu/oas>

### **Academic Success**

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Department of Student Support and Transitions to learn more.

## **GRADUATE ACADEMIC CREDIT**

### Policies and Procedures

#### **Transfer Credit**

Transfer of courses not counted toward a previous degree from another AACSB accredited graduate school is limited to six semester hours. Courses used for transfer credit must be equivalent to another course within the graduate program and approved by the faculty program director. All transfer credit must: 1) be recommended by the major department; 2) be evaluated as graduate work by the evaluation section of the Office of Admissions of Florida State University; and 3) have been completed with grades of 3.0 (“B”) or better.

Grades earned at another institution cannot be used to improve a grade point average or eliminate a quality point deficiency at Florida State University.

The University does not accept experiential learning, or award credit for experiential learning. Transfer credit based on experiential learning from another institution will not be accepted.

#### **Grade Appeals System**

The purpose of the grade appeals system is to afford an opportunity for a student to appeal a final course grade under certain circumstances. Faculty judgment of students’ academic performance is inherent in the grading process and hence should not be overturned except when the student can show that the grade awarded represents a gross violation of the instructor’s own specified evaluation (grading) statement and therefore was awarded in an arbitrary, capricious, or discriminatory manner.

The evaluation (grading) statement utilized during the grade appeals process is the one contained in the instructor’s syllabus at the beginning of the semester. This system does not apply to preliminary or comprehensive exams or to thesis or dissertation defenses; these issues are reviewed by the Student Academic Relations Committee via the Dean of the Faculties.

The entire policy is found in the *Academic Regulations and Procedures* section of the *Florida State University General Bulletin* (<http://registrar.fsu.edu/bulletin/undergrad/apdefault.htm>) and on the Office of Faculty Development and Advancement’s website: (<https://fda.fsu.edu/academic-resources/academic-integrity-and-grievances/grade-appeals-system>).

#### **Incomplete Grade Policy**

Incomplete (“I”) grades should be recorded only in exceptional cases when a student, who has completed a substantial portion of the course and who is otherwise passing, is unable to complete a well-defined portion of a course for reasons beyond the student’s control. Students in these circumstances must petition the instructor and should be prepared to present documentation that substantiates their case. Incompletes should not be granted in order to allow students to do extra coursework in an effort to increase their grades.

Even under these circumstances, the authority for determining whether to grant an incomplete rests solely with the instructor. A Graduate Teaching Assistant must have approval from a supervising faculty member to grant an incomplete.

In order to assign an incomplete, an instructor is required to indicate on the grade roster the time frame for resolution of the grade and the default grade (default grade of incomplete is not allowable) to be assigned if the student does not complete the remaining academic work. Some departments also require that an incomplete be documented with an "Incomplete Grade Agreement." It is the student's responsibility to complete the remaining academic work within the agreed-upon time frame.

Under University policy, an incomplete grade automatically reverts to the predetermined default grade at the end of the semester that has been specified by the faculty member as the time frame for resolution, unless one of two conditions is met:

1. Upon completion of the agreed-upon work, the instructor submits a grade-change (online) that replaces the "I" with the final grade for the course.
2. The instructor submits a separate "Incomplete Extension of Time" form to the Evaluation and Posting Section of Admissions and Records before the end of the semester in which the "I" is set to expire.

In cases where no default grade or instructor-determined expiration semester exists, incomplete grades will expire to an IE at the end of the next term of enrollment unless the instructor submits a grade change prior to the official grade-posting deadline. No grade changes will be made to default grades or unresolved "I" grades after the degree has been granted.

### **Recency of Work**

The work for the master's degree must be completed within seven years from the time the student first registers for graduate credit. Any graduate work transferred from another institution must have commenced not more than seven years prior to completion of the degree for the credits to be applicable to the master's degree. If the master's degree is not completed within seven years from the time the student first registers for graduate credit, and the program and/or Department Chair does not choose to approve an Extension of Time (EOT), then the student may no longer be enrolled in that program or at Florida State University.

### **Minimum Course Grades for Graduate Credit**

Credit for graduate courses will only be given for courses that are passed with a grade of C- or higher. Courses in which grades of D or F are earned will not count for graduate credit in business programs. In addition, please note that all courses required to fulfill program requirements must be taken for a grade and cannot be taken on a Satisfactory/Unsatisfactory basis unless the required course is only offered on a Satisfactory/Unsatisfactory grading basis (such as Internship.)

## GRADUATE ACADEMIC RETENTION

### GPA Dismissal

A graduate student whose cumulative GPA in the program falls below 3.0 at the end of a term will be considered not in good standing by the University and will be placed on academic probation. If a 3.0 cumulative GPA is not attained by the end of the next term of enrollment, the student will be placed on academic dismissal.

While your university GPA is calculated based on all graduate work at the university, the College of Business calculates your average GPA separately for each program in which you are enrolled. Academic status in your College of Business degree program is based upon your program GPA, not your university overall graduate GPA.

Students on dismissal will not be permitted to register for graduate study. However, at the time of dismissal, the program director may petition the academic dean for consideration of special circumstances that will constitute justification for an exception to this regulation. Students who are subsequently reinstated for graduate enrollment are considered to be on “Dismissal Probation” and may have one term to increase their GPA to 3.0 or above. Under no circumstances will a student be allowed more than one additional term of probation after reinstatement.

### Review Process for GPA Dismissal

The review procedure will be initiated by the Assistant Dean for Graduate Programs at the end of each semester. The action taken will be based on the extent of the deficiency:

1. **Dean’s Hold** – Once a student has been dismissed due to GPA deficiency, they will no longer be permitted to register for classes. In the event that the student is approved by the faculty director and Associate Dean for a one-time reinstatement, a Dean’s Hold will be placed upon their registration after the advisor has assisted them in enrolling for one last term (called the “dismissal probation term”.)
2. **Dismissal Reinstatement Agreement** – Students who have been approved for a one-time reinstatement must sign the Dismissal Reinstatement Agreement that will be provided to them by their advisor. The form contains the courses the student will take in the subsequent term, as well as the grades that must be earned to remediate the GPA and be returned to good academic standing. **Students whose GPA is still below 3.0 after the dismissal probation term are permanently dismissed from the university.**

### Program Termination

Program terminations (dismissal for a reason other than GPA) are processed at the academic program/departmental level and may occur for a number of different reasons, including but not limited to:

- Inability to conduct research in a fashion appropriate with the accepted norms of a discipline,



- Inability to function within a team environment to the degree that it negatively affects the learning, practice and/or research of fellow graduate students,
- Demonstration of behavior that is not acceptable with the general community in which the student would be practicing should he or she graduate (typically clinical or school settings),
- Failure meeting one or more major milestone requirements.

### **Review Process for Program Termination**

**Step 1:** A graduate student is identified by his/her academic program/department as not making sufficient progress towards the degree, failing to complete the degree within the specified time-period, or whose academic performance is substandard, regardless of GPA.

**Step 2:** The graduate student meets with his/her major professor and/or program director to develop a remediation plan for the incomplete degree requirement or scholarly/behavioral objectives.

- The department will provide a written remediation plan or written academic “warning” to the student.
- The remediation plan/academic warning will be developed by the department/program for the individual student and documented accordingly.
- The academic dean, or appropriate designee, will also be notified of the situation, the deficiencies, and the remediation steps presented to the student.

**Step 3:** A written letter must be sent to the graduate student being dismissed which specifies the following information:

- The termination reasons,
- Benchmarks missed,
- The fact that an academic hold will be placed on registration on registration and effective date/semester,
- Dismissal from the program constitutes dismissal from the University,
- Any limitations on future enrollment in courses offered by the department/college, should the student reapply to the university in a different program,
- Alternatives a student could request, e.g., graduating with a master’s instead of Ph.D. (assuming coursework and degree requirements are met),
- Timeline to complete specific coursework, if any,
- Notification of the right to appeal and information about how to do so, and
- A deadline for any appeal submittal.

### **Faculty Academic Judgment**

Successful completion of coursework constituting the student’s program of studies, comprehensive exam, master’s project, or thesis does not guarantee continuance in a master’s degree program or award of the master’s degree. Faculty judgment of the academic performance of the student is inherent in the educational process in determining whether the student should continue to be enrolled or be awarded the master’s degree, or whether admission into a higher-level degree program is warranted.

## MASTER OF SCIENCE IN BUSINESS ANALYTICS (MS-BA) PROGRAM OVERVIEW

**Learn to manage and leverage big data.**

Why should you consider an MS-BA degree?

- **HIGH INDUSTRY DEMAND:** Surging growth in digital information means businesses are seeking graduates who can transform this raw data into trusted analysis used to develop new financial strategies.
- **SOARING JOB GROWTH:** New jobs for business analytic professionals are expected to exceed 35,000 in the next three years, an increase of more than 15 percent, according a 2017 report supported by IBM and the Business Higher Education Forum.
- **STEM DESIGNATED:** Because our MS-BA qualifies as a Science, Technology, Engineering or Mathematics (STEM) degree, as defined by the U.S. Department of Education, students know they are gaining the priority technical and analytical skills employers seek to remain globally competitive. The STEM designation also allows eligible graduates on student visas to extend their work stay in the United States up to two years longer.

Admission into the MS in BA program occurs once a year, every summer semester. The program is designed so that a typical full-time student can complete the degree in 3 semesters.

The one-year Master of Science in Business Analytics degree program requires students to complete 11 courses (33 credit hours). Our program is robust and provides students with a rigorous foundation of machine learning, programming and optimization. Students entering the program should be committed to further improving their mathematical/statistical and programming training. This training will prepare students to be leaders in the analytics field or to apply to related Ph.D. programs. The courses in the program will make use of a variety of mathematical, statistical and programming tools. These tools include: (i) calculus and linear algebra, (ii) statistical methods (including regression and its extensions), and (iii) computer programming software (R, Python, C++, Java, etc.)

## **MAJOR COURSE REQUIREMENTS FOR MASTER OF SCIENCE IN BUSINESS ANALYTICS**

The MS-BA degree program will require students to complete 11 courses (33 credit hours), a combination of 8 core courses (24 credit hours) and 3 elective courses (9 credit hours).

Core courses will include:

- ISM 5136 Data Analytics and Mining for Business
- ISM 5560 Data Management in Business Analytics
- ISM 5565 Foundational Concepts for Business Analytics
- ISM 5566 Forecasting, Revenue Management & Pricing
- ISM 5644 Programming for Analytics
- QMB 5616 Probabilistic Optimization for Analytics
- QMB 5755 Quantitative Methods in Business Analytics I
- ISM 5569 Business Analytics Capstone

Elective course options will include applications of analytical tools in specific business disciplines, such as marketing, human resources, operations, finance or real estate, including:

- ISM 5935 Data Visualization
- RMI 5257 Data Analytics in Risk Management and Insurance
- MAN 5375 HR Analytics
- MAR 5675 Marketing Analytics
- GEB 5944 Graduate Internship

*Program requirements are subject to change. Please consult with your advisor for additional elective options.*

### **Prerequisites**

All applicants must have a bachelor's degree from a regionally accredited institution. Prerequisite coursework should provide a solid background in mathematics, statistics and computing. This would include: (1) at least one college-level course in calculus, (2) at least one college-level course in probability and statistics, and (3) at least one college-level course in computer programming using a high-level language such as Python, R, C++, etc. Previous coursework in business is not required, but all applicants are expected to have a general knowledge of economics, finance, accounting, statistics, calculus and management principles.

## PROGRAM SCHEDULE

### Summer

QMB 5616 Probabilistic Optimization for Analytics (Session A)  
ISM 5644 Programming for Analytics (Session B)  
ISM 5565 Foundational Concepts for Business Analytics (Session C)

### Fall

QMB 5755 Quantitative Methods in Business Analytics I  
ISM 5560 Data Management in Business Analytics  
ISM 5566 Forecasting, Revenue Management & Pricing  
ISM 5136 Data Analytics and Mining for Business

### Spring

ISM 5569 Business Analytics Capstone  
Electives\* (3 required):  
    ISM 5935 Data Visualization  
    RMI 5257 Data Analytics in Risk Management and Insurance  
    MAN 5375 HR Analytics  
    MAR 5675 Marketing Analytics  
    GEB 5944 Graduate Internship

*\*Note: Elective offerings are subject to change and all electives are not guaranteed to be offered each year.*

## COURSE DESCRIPTIONS

### **GEB 5944 Graduate Internship**

This internship offers a working and learning experience in the business industry. S/U grade only, 3 credit hours.

### **ISM 5136 Data Analytics and Mining for Business**

This course will provide a managerial overview of the state of art technologies and techniques that are used to discover rich and existing patterns for generating business value, i.e. “business intelligence” for organizations.

### **ISM 5560 Data Management in Business Analytics**

This course will discuss various data-related issues in business analytics and introduce the best practices, underlying principles, and emerging technologies in data management. Specifically, the course will cover 1) foundational data management concepts, 2) best practices in managing big data, and 3) unstructured data management.

### **ISM 5565 Foundational Concepts for Business Analytics**

The primary objective of this course is to prepare graduate students in the Business Analytics graduate program with foundational tools and techniques used in subsequent courses. The primary (but not exclusive) focus will be on achieving and understanding of the role of applied probability methods in business analytics.

### **ISM 5566 Forecasting, Revenue Management & Pricing**

This course explores how big data can be used for understanding and analyzing customer demand and behavior. First, the class surveys the canonical uses of data to analyze consumer demand — time-series forecasting. There will be a focus on Exponential Smoothing and ARIMA models. Then, we explore the idea that sales is not the same as demand.

### **ISM 5569 Business Analytics Capstone**

This course is to provide students with an advanced level of analytical skills that will enable them to examine business problems by developing models, analyzing alternatives, and recommending solutions using techniques and tools they have learned in previous Business Analytics courses.

### **ISM 5644 Programming for Analytics**

This is an introductory course intended to introduce students to the basics of computer programming for business analytics. The course will place special emphasis on utilizing Python programming language for data science and analytics related tasks.

### **ISM 5935 Data Visualization**

The procedures and techniques taught in this course will allow students to properly express the results of analytical procedures, whether they are descriptive, predictive, or prescriptive.

### **MAR 5675 Marketing Analytics**

The practicing marketing scientist must necessarily have a lot of tools in the toolbox. However it is difficult to learn these tools since they have been adopted from a large number of other fields; like psychology, economics and sociology; each with its own notation. This course then will serve as a survey

of the Marketing Analytics field, reducing your startup cost to using the techniques needed by the practicing marketing scientist, and to show how marketing analytic techniques feed into the strategic marketing process and business decision-making in general.

**QMB 5616 Probabilistic Optimization for Analytics**

This course teaches students techniques to address problems in regression, discriminant analysis, principal component analysis, logistic regression, SEM, etc. Students will utilize methods such as calculus and linear algebra.

**QMB 5755 Quantitative Methods in Business Analytics I**

This course focuses on deterministic methods of prescriptive analytics.

**RMI 5257 Data Analytics in Risk Management and Insurance**

This course focuses on the use of data and analytical tools in the insurance industry. A set of tools is developed for analyzing the types of data used by insurers across various functions including loss estimation, loss reserving, underwriting, and claims. Topics will include exploring traditional and new sources of data, legal and ethical considerations, and challenges associated with forecasting and making inferences in the context of risk and uncertainty.

**MAN 5375 HR Analytics**

The course focuses on the analysis and application of a company's HR data to uncover insights that inform HR strategies, process changes, and investments – with the goal of improving organizational performance (i.e., driving business outcomes). Students will learn about theory and research regarding drivers of employee performance, retention, and engagement, as well as the critical HR metrics that are important for business outcomes.

## FINANCIAL AID AND FUNDING

The College of Business awards a number of assistantships, fellowships, and scholarships to applicants with strong academic credentials. No duties are associated with the fellowships and scholarships other than the requirement to remain an enrolled student (no fewer than six credit hours) in good standing in the MS-BA program. Assistantships are a combination of biweekly pay and semesterly in-state tuition waivers and require the student to work 10 hours per week as a graduate research or teaching assistant. Assignments are made as research assistants or teaching assistants according to the current needs of the Department of Business Analytics, Information Systems, and Supply Chain.

Financial awards for the Master of Business Analytics program are normally awarded during the spring term before students begin the one-year program. Applicants interested in assistantship should respond in the affirmative on the application question that asks if financial assistance is requested. All such applicants will be reviewed for assistantships and offers will be made before the beginning of the first term.

Students interested in scholarships and fellowships should complete the [FSU College of Business Graduate Scholarship](#), which opens annually on January 15<sup>th</sup> annually and runs until March 1.

### UFF-GAU

The FSU UFF-GAU Collective Bargaining Agreement and subsequent Memoranda of Agreement set forth the terms and conditions that affect the employment of students who are supported on graduate assistantships. These documents can be found on the FSU Graduate School website: [http://gradschool.fsu.edu/content/download/299150/2094937/2015-2018FSU-BOT\\_GAU\\_CBA.pdf](http://gradschool.fsu.edu/content/download/299150/2094937/2015-2018FSU-BOT_GAU_CBA.pdf).