**business analytics and information systems**

**Master of Science (M.S.) Degree**

**DEGREE INFORMATION**

**Priority Admission Application Deadlines:**

**Fall:** June 1

**Spring:** October 15

International applicant deadlines:

<http://www.grad.usf.edu/majors>

**Minimum Total Hours:** 33

**Level:** Masters

**CIP Code:** 11.0501

**Dept. Code:** QMB

**Major/College Codes:**  BAI BA

**Approved:**  2002

**Concentrations:**

Analytics and Business Intelligence (ABI)

Information Assurance (CIA)

**Also offered as:**

Track under Business Administration (Ph.D.) and application area in Business Administration (M.B.A.)

**CONTACT INFORMATION**

**College:** Muma College of Business

**Department:** Information Systems/Decision Sciences (QMB)

**Contact Information:** [www.grad.usf.edu](http://www.grad.usf.edu/)

**MAJOR INFORMATION**

The Master of Science (M.S.) in Business Analytics and Information Systems (BAIS) meets the needs of the marketplace for expertise in analytics, information technology and management. Highly qualified individuals with motivation for leadership in information technology and analytics are encouraged to apply for admission to this program. The major meets the needs of organizations in information services, software development, management consulting, and other sectors wherer data analytics is used in industry. An Advisory Board consisting of senior business analytics and information systems executives works closely with the department to ensure that the program stays relevant and maintains high standards.

The major is offered in two forms – an on-campus option and a weekend executive option.

The on-campus option is designed for students who need flexibility in their course work. Students will work with faculty to design the most effective course sequence and optional thesis/practicum /independent studies to meet the major curriculum requirements and accomplish their career goals.

Alternately, the weekend executive option is intended for full-time working Information Technology/Information Systems/Business professionals who will pursue this degree while remaining employed. The weekend executive option is offered on a cohort basis with a pre-determined set of courses and independent study options selected by faculty based on market needs and student profiles. Students will benefit from an accelerated curriculum with a managerial and leadership approach. To get the full benefit, applicants are expected to have a minimum of 5 years of relevant work experience.

**Accreditation**

Accredited by the AACSB International – The Association to Advance Collegiate Schools of Business.

**ADMISSION INFORMATION**

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below. Students are admitted to the M.S./BAIS program based on the evaluation of their application in its entirety, including:

* bachelor’s degree with a 3.00 GPA.
* GMAT, GRE or other standardized scores for graduate programs (e.g. MCAT, LSAT).
  + For students with 5 years or more of relevant full-time work experience in Information Technology/ Information Systems/ Business Analytics in U.S., the requirement of standardized scores may be waived.
  + Students requesting such waivers should provide information justifying such waivers based on the above criteria. Additional documentation may be sought when deemed appropriate by the program.
* Language proficiency scores (for international students only) (e.g. TOEFL with a minimum score of 79) using TOEFL or IELTS or other standardized English tests as accepted by Graduate Admissions
* letters of recommendations.
* statement of purpose, and
* relevant work experience.
* For applicants with a 3-year Bachelor’s Degree  from a regionally accredited institution, the following requirements need to be met in addition to those listed above:
  + Minimum GMAT score of 650 or a minimum GRE score of at least 321, and a minimum of 25 in the verbal portion of the test.
  + When the 3-year Bachelor’s Degree is less than 120 hours from Non-Bologna Accord Institutions, a transcript evaluation from a NACES member is required to confirm equivalency.

**CURRICULUM REQUIREMENTS**

The major requires 33 hours of coursework and may be taken either full-time or part-time. Full-time students with appropriate prerequisites may be able to complete the major in one full year (3 semesters) of study. Part-time students and full-time students who need prerequisites will typically need from 1 ½ to 3 years to complete the degree.

**Prerequisites**

Incoming students are expected to have the following as prerequisites:

1. ~~One semester of a~~ A course in high-level, object oriented programming language (e.g., C#, C++, Java and Python) or substantial programming experience;
2. ~~One semester of~~ A course in *Information Systems Analysis and Design* or equivalent experience;
3. ~~One semester of~~ A course in *Database* Systems or equivalent experience;
4. A course in Statistics or equivalent professional qualification or experiences
5. A course in economics, or equivalent professional qualification or experiences and
6. A course in financial accounting.

These required prerequisite courses may be taken concurrently with courses in the M.S./BAIS major. Prerequisiite courses do not count toward the 33 credit hours of course requirements in the M.S./BAIS major.

**Students have the choice of two options:**

**On-Campus Option:**

Designed for students who need flexibility in their course work, students will work early in the first semester with their major advisor to complete a formal Major Curriculum of Study meeting the Major Curriculum Requirements that will define a coherent sequence of courses to accomplish the student’s objectives. Students have choice of electives as well as the option to complete a master’s thesis or practicum project, depending upon the availability and approval of a faculty sponsor.

**Executive Weekend Option:**

Intended for full-time working Information Technology/Information Systems/Business professionals who will pursue this degree while remaining employed. Offered on a cohort basis, students will meet the Major Curriculum Requirements through a pre-determined set of courses, electives, and independent study options selected by faculty and noted on the formal Major Curriculum of Study, based on market needs and student profiles. Students will benefit from an accelerated curriculum with a managerial and leadership approach. To get the full benefit, applicants are expected to have a minimum of 5 years of relevant work experience.

**Total Minimum Hours: 33 credits**

Core – 12 credits

Capstone – 3 credits

Concentration or Electives – 18 credits

**Technical Core – 12 credits**

The following four courses provide an understanding of the state-of-the-art in research and practice in technical areas of Information Systems Management.

ISM 6124 3 Advanced Systems Analysis and Design

ISM 6218 3 Advanced Database Management

ISM 6225 3 Distributed Information Systems

~~ISM 6436~~QMB 6302 3 ~~Operations and Supply Chain Processes~~ Analytical Methods for Business

**Capstone Course - 3 credits**

ISM 6155 3 Enterprise Information Systems Management

This course is considered to be the capstone of the M.S./BAIS major and as such it must be taken during one of the last two semesters of the student’s major.

**CONCENTRATION OPTIONS:**

Students select from the following concentrations or complete 18 hours of electives.

**ANALYTICS & BUSINESS INTELLIGENCE CONCENTRATION – 18 hours**

In addition to the Technical Core and Capstone courses, students must complete the following:

**Required courses – 12 credits**

Students will have to complete four out of the following seven courses:

ISM 6136 3 Data Mining\*

ISM 6218 3 Advanced Database Management

ISM 6208 3 Data Warehousing

ISM 6137 3 Statistical Data Mining\*

QMB 7566 3 Applied Multivariate Statistical Methods

ISM 6930 3 Statistical Programming for Business Analytics\*

ISM 6930 3 Big Data and Ecommerce

In addition, graduate students who take the required four courses for this concentration and earn an average GPA of 3.00 or higher in these courses, will receive a SAS approved Certificate in Analytics and Business Intelligence, when they use a SAS analytics package as part of some of these courses.

Specifically, graduate students will need to use, among other tools, SAS Enterprise Miner or an equivalent SAS analytics package in the Data Mining, Statistical Data Mining and Statistical programming for Business Analytics courses. If students take at least one of the courses marked with a \* as part of the analytics and business intelligence concentration, they will receive a SAS approved Certificate in Analytics and Business Intelligence.

**Electives – 6 credits**

To complete the Analytics and Business Intelligence concentration, students will need to meet the 33 credit hour requirement for the MS in BAIS degree program by taking graduate level electives for the program. Other electives from across the campus may also be taken to meet the 33 credit hour requirement with prior approval of the academic advisor of the program.

**INFORMATION ASSURANCE CONCENTRATION – 18 hours**

In addition to the Technical Core and Capstone courses, students must complete the following:

**Required courses – 6 credit hours**

ISM 6328 3 Information Security & Risk Management

ISM 6930 3 Selected Topics: Decision Analysis for Business Continuity and Disaster Recovery

**Electives – 6 credits**

Any two elective courses from the set of courses listed below

ISM 6145 3 Seminar on Software Testing

ISM 6316 3 Project Management

ISM 6124 3 Advanced Systems Analysis and Design

ISM 6218 3 Advanced Database Management

ISM 6266 3 Software Architecture

**Electives – 6 credits**

To complete the Information Assurance concentration, students will need to meet the 33 credit hour requirement for the MS in BAIS degree by taking graduate level electives for the major. Other electives from across the campus may also be taken to meet the 33 credit hour requirement with prior approval of the academic advisor of the program.

**Electives - 18 credits**

Up to eighteen graduate level credits may be selected from additional Information Systems courses or (with prior approval by the academic advisor) other areas of specialization such as areas of Management, Decision Sciences, Computer Science, Logistics, etc. Existing Course Offerings:

ISM 6124 3 Advanced Systems Analysis and Design

ISM 6266 3 Software Architecture

ISM 6145 3 Seminar on Software Testing

ISM 6155 3 Enterprise Information Systems Management

ISM 6218 3 Advanced Database Management

ISM 6225 3 Distributed Information Systems

ISM 6305 3 Managing the Information System Function

ISM 6442 3 International Aspects of Information Science

ISM 6405 3 Information and Business Intelligence

ISM 6485 3 Electronic Commerce

ISM 6905 1-6 Independent Study

ISM 6930 1-6 Selected Topics in Management Information Systems

ISM 6316 3 Project Management

ISM 6136 3 Data Mining

ISM 6208 3 Data Warehousing

ISM 6056 3 Web Application Development

ISM 6156 3 Enterprise Resource Planning & Business Process Management

ISM 6328 3 Information Security and Risk Management

In addition, the following Special Topics are being offered:

ISM 6930 Selected Topics: Multimedia Applications

ISM 6930 Selected Topics: Mainframe Technologies

ISM 6137 Statistical Data Mining

**Thesis Option - 6 hours**

The master’s thesis option requires six credits of ISM 6971, which count as six of the 18 BAIS elective credits. The thesis must make a well-defined contribution to the research and development in an area of Information Systems.

ISM 6971 2-6 Thesis: Masters

**Practicum Option – 1-6 hours**

The practicum option requires an investigation of a new information technology artifact. The project typically occurs in the student’s place of employment and is jointly supervised by a faculty member and a manager in the company. One credit of ISM 6905 would be taken for each semester that the student works on a project. The practicum would count for one to six hours of the 18 hours of BAIS electives.

**Research/Project Option – 1-3 hours**

The research/ project option requires working on an BAIS related project that involves research or community engagement. The project is supervised by a faculty member. One to two credits of ISM 6905 would be taken for each semester that the student works on a project. The research/ project option would count for one to three hours of the 18 hours of BAIS electives.

**Comprehensive Exam**

In lieu of a comprehensive exam, assessments comprising the capstone course (ISM 6155) fulfill the requirements for the comprehensive assessment in the program.

**Graduate Certificate Options**

Note that students in the Program can also obtain graduate certificates in (1) Compliance, Risk and Anti-Money Laundering and/or (2) Information Assurance by selecting elective courses suitably.

**COURSES**

See [http://ugs.usf.edu/course-inventory](http://www.ugs.usf.edu/sab/sabs.cfm)

**Accelerated B.S./M.S.**

The goal of the USF Muma College of Business integrated undergraduate-graduate program in BAIS is to provide outstanding undergraduate students an option to complete the B.S. undergraduate degree in BAIS and the M.S. graduate degree in BAIS in **five years** (141 total hours).

The integrated B.S./M.S. program is a 141-hour undergraduate-graduate option that allows eligible students to work towards the M.S. in BAIS degree requirements while completing their undergraduate B.S. degree. Students interested in this option will work closely with an advisor and a faculty member to develop an integrated plan of study.

**General Guidelines**

* **Time of admission to the accelerated program:** Students will be eligible for admission to the accelerated major at the beginning of their Senior year in BAIS. Students must apply for admission consideration during their Junior year. Students will start taking courses in the graduate program in their Senior year.
* **Joint admission:** Students must apply to and meet admission requirements of the M.S. in BAIS graduate major.
* **Plan of study:** In consultation with an advisor and a faculty member, students will be required to prepare a *Graduate Degree Action Plan*. The plan will cover the entire time period of the majorand it will be periodically reviewed with an advisor.
* **Advising:** Students will present their portfolio (see below for details and a plan of study in person to the integrated program committee prior to being admitted to the major.
* **Tuition charges:** Students will be required to pay graduate tuition rates when taking graduate courses.

**Admission Requirements**

1. Students with at least a Junior standing in their undergraduate degree program may apply for admission consideration into the integrated B.S./M.S. undergraduate/graduate major Students will submit an *Accelerated Program Interest Form* that must be signed by the Graduate Director.
2. Students must have a minimum 3.25 GPA.
3. Interested students will be required to present a “portfolio” of the following credentials:
   1. Three letters of recommendation, at least two from faculty
   2. Statement of intent—a personal statement about why the student wishes to apply for the integrated program.
   3. Undergraduate transcripts.
   4. Other supporting documents (e.g., projects and papers, software, work experience, internships, etc.) should be included where possible.
4. The GMAT or GRE should be taken sometime before or during the Fall semester of the Junior year of study.
5. All applicants will need to meet ***any other admission requirements established*** for the M.S. in BAIS program.
6. The application to the accelerated program will be considered as a complete package and therefore obtaining a high undergraduate GPA is not a guarantee of admission. Grades in the undergraduate BAIS core courses will be taken in consideration and will have a significant impact on the M.S./BAIS acceptance decision.

**Degree Requirements**

5-Year Plan of Study for Accelerated B.S./M.S. Undergraduate-Graduate Major:

With appropriate planning, a total of 12 hours of graduate credit may be taken that can be applied to both the B.S. and M.S. degrees. This will reduce the minimum total credits required for both programs from 153 (120 for B.S., 33 for M.S.) to 141 credits. Specifically:

* 9 hours of graduate credit can be taken in place of the 9 hours of elective undergraduate credits. The student must earn a minimum grade of B in each graduate course that is to be counted for both degrees.
* The graduate level Operations and Supply Chain Processes course ISM 6436 can be taken in place of the comparable undergraduate course ISM 3431.

A comprehensive plan of study to complete the integrated B.S./M.S. program will be developed with the guidance of an advisor and a faculty member. A possible plan of study could be as follows. Summer sessions may also be included in the study plan.

**First and Second Year**

Courses and credits as designated for Freshman and Sophomore years.

**Third Year (Apply for Admission to Integrated B.S./M.S. Program)**

ISM 3232 3

ISM 3113 3

Additional UG Courses 9

ISM 4212 3

ISM 4220 3

Additional UG Courses 9

**Fourth Year (Student accepted in M.S./BAIS Program)**

ISM 6436 3

UG Courses 12

ISM 4300 (B.S. Capstone) 3

ISM 6124 3

UG Courses or Graduate Electives 6 hours

**Fifth Year**

ISM 6225 3

ISM 6218 3

Graduate Electives 6

ISM 6155 (M.S. Capstone) 3

Graduate Electives 12

The following courses are suggested specialization elective courses, cross-listed between the graduate and undergraduate catalog:

ISM 6145/4930 Software Testing

ISM 6156/4153 Enterprise Resource Planning

ISM 6328/4323 Information Security and Risk Management

ISM 6930/4930 Mainframe Technologies

**COURSES**

See [http://ugs.usf.edu/course-inventory](http://www.ugs.usf.edu/sab/sabs.cfm)