USF MS BAIS (on-campus) Program
Planning / Course Selection
For Incoming Students

Getting started

Welcome to USF's MS Business Analytics and Information Systems program (BAIS). This document is intended to help you get ready to join us. Please contact Prof. Barbara Warner (bwarner@usf.edu) with any questions.

Getting Started:

1) **Review our Department's New Student web page at** http://www.usf.edu/business/graduate/masters/bais/new-student.aspx **.**

2) **Remove the MS BAIS Registration Hold.** If you are an international student, as soon as you get your Visa, please send a copy to msmis@usf.edu . We will remove the MS BAIS registration hold. Domestic students can send an email to the same address and mention that you are not an international student and request the hold be removed.

3) **By December 15, sign up for our MS BAIS Orientation, tentatively scheduled for Thursday, January 9, at 8:30am, using the following link:** http://usfweb.usf.edu/business/forms/mis-orientation-register.aspx **.** This lets us know of your intent to attend so we can send you notifications relating to your start at USF. **NOTE**: if you are planning to attend USF in the upcoming semester, but cannot attend orientation, please register for the event anyway and note your inability to attend in the 'Expected Date of Arrival' area.

4) **Review the Basic Graduate College New Student Information**: This includes how to register for classes, pay tuition, and links for international students as well as other valuable resources for new graduate students. New Office of Graduate Studies student information can be found at https://www.usf.edu/graduate-studies/students/admitted-student-resources/index.aspx

5) **Have your prerequisites reviewed.** A list of required prerequisites can be found on our faq page at http://www.usf.edu/business/graduate/masters/bais/faq.aspx . Additionally, please email Prof. Warner (bwarner@usf.edu) ***with your U number and your USF email address*** and request a prerequisite check, so you can use your time before arrival productively, should you need to complete any program prerequisites. With careful course planning, prerequisites can also be done while in the program – but the degree may take longer to complete. Note: if you have not met the technical prerequisites, you'll be required to take those classes on-campus at USF. All prerequisites must be completed ***before*** your final semester.

6) **Review the BAIS Program**: The MS BAIS Program curriculum includes 5 required courses and 6 electives. Some of these courses have prerequisites. See https://www.usf.edu/business/graduate/masters/bais/coursework.aspx for more on the coursework.

MS BAIS Program Technical Core Classes - (15 credits, required):

- ISM 6124 – Advanced Systems Analysis and Design (requires a systems analysis or software engineering prerequisite)
- ISM 6218 – Advanced Database Administration (requires a database prerequisite)
- ISM 6225 – Distributed Information Systems (should have completed the Object-Oriented programming prerequisite)
- QMB 6304 – Analytical Methods for Business
- ISM 6155 – Enterprise Information Systems Management

MS BAIS Program Electives – (18 credits):

- These are generally the 6000 level, 3-credit ISM courses.
- Relevant courses from other departments across USF can be used with prior approval. However classes out of our department (non-ISM or MAN) MUST be approved before you assume it can be used as part of the MS BAIS degree.

- Classes that aren't eligible: undergraduate classes, QMB 6358, ISM 6021, ISM 6123, ISM 6436 or ISM 6217. Some graduate College of Business classes are also not eligible.

BI Concentration - **SAS/USF Analytics and Business Intelligence Graduate Certificate** – If you are interested in this, plan your schedule to include 4 of these courses. They can be used as your electives.

- ISM 6218 – Advanced Database Administration (you will take this as part of your technical core)
- ISM 6136 – Data Mining
- ISM 6137 – Statistical Data Mining (requires QMB 6304 as a prerequisite)
- ISM 6208 – Data Warehousing (requires ISM 6218 as a prerequisite)
- ISM 6562 – Big Data for Business Applications
- ISM 6930 - Statistical Programming for Bus Analytics

Course Sequencing notes: The MS BAIS program gives you the opportunity to develop deep expertise in an area by taking courses in the area in a sequence in 2/3 consecutive semesters. You will get the most by following one or more of these sequences depending on your expertise and career focus.

- **Data Science**: Recommended course Sequence: Data Mining -> Data Science Programming -> Big Data for Business Applications.
- **Application Development**: Recommended course Sequence: Distributed Information Systems -> Big Data for Business Applications.
- **Data Analytics using Statistics**: Recommended course Sequence: Analytical Methods in Business-> Statistical Data Mining

Please refrain from registering for one of the later courses in a sequence without completing the prior classes in the sequence in order to get the most of out of these courses. This also helps students in the later courses benefit from a deeper coverage of the material.

7) Look at the schedule search (https://www.usf.edu/registrar/resources/index.aspx , Select > New and Non-degree seeking schedule search) and see which classes are offered in the coming semester and when they are offered. Another search tool that many find helpful is the staff search page at http://www.registrar.usf.edu/ssearch/staff/staff.php .

8) Make a tentative plan – The MS BAIS degree requires 33 credits plus any outstanding prerequisites. You'll want to plan out your coursework based on your expected graduation date.
A few notes on this:

- New international students MUST take an on-campus class that begins in the first week of the semester. Since most fall classes start the first week, this policy usually impacts students starting the program in a spring semester only. ***Incoming International Spring students must be enrolled in at least one in-class course that starts the first week of classes in January***.
- The fall and spring each have a 12-week session and a 4-week session. This means you can take a selection of classes during the 12-week session and also take a class in a 4-week session. The 4-week sessions classes usually meet twice a week at night and on Saturday mornings. In the spring, these accelerated classes are offered in January. In the fall they are offered late-November through mid-December.
- The spring session often offers a 1 week, 3 credit class during spring break that meets every day, all day.
- In early summer, we also offer a 4 week 'Maymester' class when possible.
- It's strongly recommended to take all of your core classes and BI Certification classes (if you are interested in this certification) during the fall and spring. Summer is a difficult time to complete required courses since there are often fewer classes offered and many students use summer to complete a summer internship as an independent study course. It's best if you leave your electives for the summer term(s).
- Some good classes to start with are:
  - QMB 6304 – Analytical Methods for Business *(** take this your first semester*)

- ISM 6136 – Data Mining
- ISM 6124 – Advanced Systems Analysis and Design (requires a systems analysis or software engineering prerequisite)
- ISM 6218 – Advanced Database Administration (requires a database prerequisite)
- ISM 6155 – Enterprise Information Systems Management
- ISM 6225 – Distributed Information Systems (should have completed the Object-Oriented programming prerequisite)

- Related to the above, some classes may fill up before you can register. If this happens, please take advantage of the 'waitlist' option. This helps us know how many students need to enroll and we can often adjust class sizes or suggest alternative classes.
- Note that your last semester must include at least 2 or more credits. International students may have to comply with policies regarding on-campus vs. online courses taken in the program. Be sure you understand how these policies impact the scheduling of your courses. International Student Services (http://global.usf.edu/is) has a comprehensive site and contact information for international students. If you have any questions about the status of a blended format course (online or on-campus), please contact Prof. Warner.

9) **Register for classes (see step 3:** https://www.usf.edu/graduate-studies/students/admitted-student-resources/index.aspx**).** This page has numerous resources and information on the course registration process. **NOTE:** If you receive a message saying you have not been assigned a 'time slot' for registration, please call the registrar's office at 813-974-2000. **Note that all incoming students have a 'hold' on registration until we have received a copy of your Visa (international students) or have emailed msmis@usf.edu directly (domestic students). See #2 above on this.

   NOTE: There are several programs that include ISM graduate classes (below). Classes in these programs are not available to on-campus MS BAIS students.
   - MBA Online Program
   - CyberSecurity Program
   - Executive MS BAIS Program

   NOTE: There are a few ISM classes that do not count towards the MS BAIS degree. They are:

   - ISM 6021
   - ISM 6217 (this may be used to meet a prerequisite only)
   - ISM 6123 (this may be used to meet a prerequisite only)
   - ISM 6436
   - QMB 6358, QMB 6305 or any 2 credit MBA statistics-related course
   - Please check on non-ISM electives before assuming they can be used as part of our coursework.

10) **Pay tuition, etc. (see step 3:** http://www.grad.usf.edu/new_students.php**). NOTE:** If you choose to wire your tuition payment, please use peertransfer at https://www.flywire.com/

11) **Get a jump on the semester**. Start on the suggested resource list (included at the end of this document).

Information on Funding

- The BAIS/ ISDS department has varying numbers of GA positions each semester, which are awarded on a competitive basis. These positions provide a stipend and tuition waiver for 2 – 4 courses each semester (maximum of 2 semesters) in return for specific professional expectations associated with each position. Admitted students are informed about open positions on our new student web page and via email.

  See our FAQ page, 'finances' area, for more on this http://www.usf.edu/business/graduate/masters/bais/faq.aspx . Other

university-wide funding opportunities can be found at https://www.usf.edu/graduate-studies/funding/fellowships-scholarships/ . While the department does its best, it is unable to make any commitment that you will find a GA position during your time here.

A few more contacts:

- Student Health Service information can be found at http://www.usf.edu/student-affairs/student-health-services. Immunization information is at http://www.usf.edu/student-affairs/student-health-services/immunizations, there are phone numbers and an email address available at this site.
- Questions about required official documents should be directed to the Office of Graduate Admissions. Their contact information can be found at http://www.usf.edu/admissions/graduate
- General Graduate Program information can be found at: https://www.usf.edu/graduate-studies/
- The registrar's site is http://www.usf.edu/registrar/ which has useful information, including the academic calendar. Tuition information, including contact information, can be found at http://www.usf.edu/business-finance/controller .
- International Student Services information can be found at http://global.usf.edu/is/. I-20 questions can be sent to Thora Cecil at thoracecil@usf.edu.
- We have a group of current MS BAIS students who are drafting a letter and website to help you as you transition to USF. This should be completed and posted on our New Student Web page soon.

It is our privilege to welcome you to USF. We look forward to meeting you soon!

Attachments:

1. Program planning guide
2. Recommended pre-start courses (update recommendations are welcome)

MS BAIS Program Planning Guide

Program Prerequisites – all must be taken before graduation, some may be required for specific program classes Please contact Prof. Barb Warner (bwarner@usf.edu) for information on meeting / waiving these prerequisites.
Object-Oriented Programming (C# or Java – ISM 3232 / ISM 4141 or equivalent / experience)
Systems Analysis &Design (ISM 3113 / ISM 6123 or equivalent / experience)
Database Management / Admin (ISM 4212 / ISM 6217 / LIS 2937 or equivalent / experience)
Financial Accounting (ACG 2012 or equivalent / experience)
Economics (ECO2013 or equivalent / experience)
Statistics (QMB 2100 or equivalent / experience. Business-related statistics that minimally includes probability distributions, regression analysis, multivariate analysis, and hypothesis testing.
Technical Core
ISM 6124 – Advanced System Analysis & Design (Prerequisite: Systems Analysis & Design - above)
ISM 6218 – Advanced Database Administration (Prerequisite: Database Design/Mgmt) **This is a prerequisite for Data Warehousing (ISM 6208)
ISM 6225 - Distributed Info Systems
QMB 6304 – Analytical Methods for Business
ISM 6155 - Enterprise IS Management
ISM/BAIS Electives – 6000 level courses, 3 credit *(NOT ISM 6123 or ISM 6217**)***
ISM/BAIS or Electives from other departments – 6000 level courses, 3 credit Out of department courses have to be approved (send syllabus and explain how this enhances your MS BAIS degree)

Business Intelligence (BI) Certification – SAS / USF Certificate in Analytics and Business Intelligence. To receive this certificates, your MS BAIS coursework should include 4 of these courses.

- ISM 6218, Advanced Database Admin (must have met the database prerequisite – see top prerequisites section). Advanced DB Admin is also part of the technical core above.
- ISM 6136, Data Mining
- ISM 6137, Statistical Data Mining (must have met the statistics prerequisite – see top prerequisites section)
- ISM 6208, Data Warehousing (prerequisite: ISM 6218, Advanced Database – core class above)
- ISM 6930, Big Data and Electronic Commerce
- ISM 6930, Statistical Programming for Business Analytics

Recommended pre-start courses (identified by Jagpreet Sethi, MS BAIS '16)

Primary goal: Motivate students for high performance in MS BAIS program
Secondary goal: Generate academic momentum before students begin academic program

DATA SCIENCE ORIENTED ONLINE COURSES

Udacity, EdX and Coursera are great websites that offer online courses for free or at a nominal fee. It is worth spending some time on these websites as they'll give you extra knowledge in an organized manner. Other than video lectures, there are informative blogs that you should follow to progress your career in Data Science. Following is the list of websites you can visit and enroll in courses of interest (some links change over time, please feel free to Google similar classes):

- **Udacity**: https://www.udacity.com/courses/data-science
- **Edx**: https://www.edx.org/course/subject/data-analysis-statistics
- **Coursera:** https://www.coursera.org/browse/data-science?languages=en
- **Blog Kaggle:** http://blog.kaggle.com/
- **KDNuggets:** http://www.kdnuggets.com/
- **AnalyticsVidhya**: https://www.analyticsvidhya.com/

RECOMMENDED COURSES:

- **Apache Spark:** https://www.edx.org/xseries/data-science-engineering-apacher-sparktm

This course will walk you through the basic Spark programming paradigm and includes an overview on PySpark. It is a 4 module course and at the end of the course, you'll be in a situation to run your first ML model using Apache Spark. Highly Recommended for aspiring Data Scientists.

- **Advanced Apache Spark:** https://www.youtube.com/watch?v=7ooZ4S7Ay6Y&t

One of the longest and most in-depth Apache Spark session. By Sameer Farooqui (Databricks)

- **Machine Learning**: https://www.udacity.com/course/machine-learning-engineer-nanodegree--nd009

An interesting course that offers a so called "Nano Degree" which you can highlight on your resume. Plus, you'll examine various datasets which will further enhance your data analyzing skills.

- **Machine Learning (Advanced):** https://www.coursera.org/learn/machine-learning

This is the ultimate course as it is conducted by father of machine learning – Andrew Ng. It is very technical, mathematical, and not easy to understand at first watch. However, watching it once or twice will help you understand some underline details of the algorithm. Recommended for aspiring Data Scientists.

- **Time Series:** https://www.udacity.com/course/time-series-forecasting--ud980

Time Series forecasting is always a demanding topic from an industry point of view. This course will walk you through the topics in a very easy fashion with various examples.

- **Apache Storm:** https://www.udacity.com/course/real-time-analytics-with-apache-storm--ud381

Apache Storm is in high demand for real time big data analytics. If you already know programming in Java, this course will give you insights and details on Apache Storm.

- **Big Data Analytics using Microsoft Azure:** https://www.edx.org/course/implementing-real-time-analytics-hadoop-microsoft-dat202-2x-1

Many companies perform their analytics on one of the cloud services – Amazon, Google, Microsoft. So, it is recommended to know at least one cloud service in detail. This course is offered by Microsoft and offers exposure on performing analytics using Microsoft Azure.

- **Statistics**: https://www.edx.org/course/i-heart-stats-learning-love-statistics-notredamex-soc120x and https://www.coursera.org/specializations/statistics

Course is very intelligently designed for audience with no mathematical background and has no prerequisites. The instructor delivers the concept in a very fun and an easy way that you'll enjoy studying statistics.

- **Derek Kane's Youtube Playlist:** https://www.youtube.com/channel/UC33qFpcu7eHFtpZ6dp3FFXw/videos

The instructor covers all the topics in a very organized manner but doesn't talk a lot on each topic. Therefore, I would suggest watching these set of videos once you are prepared and want to go through everything or brush up your concepts before an interview day.

- **Python for Data Science (Beginners):** https://www.youtube.com/playlist?list=PLjgj6kdf_snaw8QnlhK5f3DzFDFKDU5f4
- **Machine Learning using Python (Intermediate):** https://www.youtube.com/playlist?list=PLQVvvaa0QuDfKTOs3Keq_kaG2P55YRn5v

- **MIT Linear Algebra:** https://ocw.mit.edu/courses/mathematics/18-06-linear-algebra-spring-2010/video-lectures/
- **LinkedIn Post: Mathematics of Machine Learning:** https://www.linkedin.com/pulse/mathematics-machine-learning-wale-akinfaderin

A guy called 'Sentdex' is popular for his live python coding and exhaustive list on machine learning concepts.