Business Analytics (career), M.S.

Businesses of all sizes are creating and storing more data than ever before according to IBM—2.5 quintillion bytes per day. Businesses are swimming in data, but often lack the talent and expertise to use it effectively for making decisions, revealing insights, and making predictions. Business analytics experts are changing that. The full-time Master of Science program in business analytics puts students on the leading edge of a burgeoning industry hungry for top notch talent.

Students learn the skills and techniques necessary to turn raw data into actionable insights. Descriptive and diagnostic analytics are just starting points in the program. The skills learned develop students into decision-makers and data scientists adept at using predictive and prescriptive analytics to solve business problems.

The full-time program is located in Iowa City. The plan of study spans 16 months, and includes core courses, internships, and electives.

Requirements

The full-time Master of Science program in business analytics requires a minimum of 40 s.h. of graduate credit. Transfer credit may be accepted with approval from the program. A major g.p.a. and a cumulative g.p.a. of at least 2.75 is required in all coursework.

The M.S. with a major in business analytics requires the following coursework.

Code	Title	Hours
Core Courses		19
Experience Course/Project		3
Electives		18
Total Hours		**40**

Core Courses

Code	Title	Hours
All of these:		
BAIS:6050	Data Management and Visual Analytics	3
BAIS:6070	Data Science	3
BAIS:9100	Data and Decisions	3
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen (taken fall and spring semester for 1 s.h. each)	2
MBA:8130	Business Communication (taken fall and spring semester for 1 s.h. each)	2
One of these:		
BAIS:6040	Data Programming in Python	3
BAIS:6060	Data Programming in R	3

Experience Course/Project

The experience course consists of a group project that solves a semester-long business problem.

Code	Title	Hours
This course:		
BAIS:6120	Analytics Experience	3

Electives

Elective coursework allows students to deepen or broaden their skills. Additional electives may be available for credit but must be preapproved.

Code	Title	Hours
18 s.h. from these:		
BAIS:4280	Cybersecurity	3
BAIS:6040	Data Programming in Python (if not taken as core course)	3
BAIS:6060	Data Programming in R (if not taken as core course)	3
BAIS:6100	Text Analytics	3
BAIS:6105	Social Analytics	3
BAIS:6110	Big Data Management and Analytics	3
BAIS:6130	Applied Optimization	3
BAIS:6140	Information Visualization	3
BAIS:6150	Financial Analytics	3
BAIS:6170	Directed Readings - Graduate Business Analytics	arr.
BAIS:6180	Healthcare Analytics	3
BAIS:6190	Forecasting	3
BAIS:6210	Data Leadership and Management	3
BAIS:6220	Business Analytics Certification Workshop	3
BAIS:6280	Cybersecurity	3
BAIS:9210	Introduction to Modeling with VBA	3
ACCT:9170	Advanced Accounting Analytics	3
BIOS:5120/ IGPI:5120/ STAT:5610	Regression Modeling and ANOVA in the Health Sciences	3
BIOS:5310/ IGPI:5310/ STAT:5810	Research Data Management	3
CS:3210	Programming Languages and Tools	arr.
CS:4420	Artificial Intelligence	3
CS:4470	Health Data Analytics	3
CS:5110/IGPI:5110	Introduction to Informatics	3
CS:5430	Machine Learning	3
ECE:5450/IGPI:5450	Machine Learning	3
ECE:5490	Multi-Dimensional Image Analysis Tools and Techniques	3
ECON:4800	Econometric Analysis	3
ECON:5800	Econometrics	3
ECON:5805	Statistics for Economics	3
EPID:5200/ IGPI:5220	Principles of Public Health Informatics	3
FIN:9160	Quantitative Finance and Deep Learning	0,3

GEOG:3520/ IGPI:3520	GIS for Environmental Studies	3
GEOG:3540/ IGPI:3540	Geographic Visualization	3
GEOG:4150/ GHS:4150/ IGPI:4150	Health and Environment: GIS Applications	3
GEOG:4580/ IGPI:4581	Introduction to Geographic Databases	3
GEOG:5540/ IGPI:5540	Geographic Visualization	3
GEOG:5055/ IGPI:5055	Geospatial Programming	3
ISE:3600/CEE:3142/ STAT:3620	Quality Control	3
ISE:4172	Big Data Analytics	3
ISE:6380	Deep Learning	3
ISE:6760	Pattern Recognition for Financial Data	3
ISE:6780	Financial Engineering and Optimization	3
JMC:3640	Information and Data Visualization	3-4
MATH:4250	Introduction to Financial Mathematics	3
ME:4111/CEE:4511	Scientific Computing and Machine Learning	3
ME:4150	Artificial Intelligence in Engineering	3
MKTG:9165	Digital Marketing Analytics	3
MKTG:9310	Marketing Analytics	3
POLI:3001	Hawkeye Poll	3
PSQF:6209/ EPLS:6209	Survey Research and Design	3
PSQF:6243/ STAT:6513	Intermediate Statistical Methods	3
PSQF:6246/ STAT:6516	Design of Experiments	4
PSQF:6250	Computer Packages for Statistical Analysis (not recommended if completed BAIS:6060)	1-3
STAT:4100/ IGPI:4100	Mathematical Statistics I	3
STAT:4101/ IGPI:4101	Mathematical Statistics II	3
STAT:4200/ IGPI:4200	Statistical Methods and Computing	3
STAT:4540/ IGPI:4540	Statistical Learning	3
STAT:4560	Statistics for Risk Modeling	3
STAT:5100	Statistical Inference I	3
STAT:5200/ IGPI:5199	Applied Statistics I	4
STAT:5400/ IGPI:5400	Computing in Statistics	3
STAT:6560	Applied Time Series Analysis	3
STAT:7400/ IGPI:7400	Computer Intensive Statistics	3
URP:6200/ PBAF:6200	Analytic Methods I	1-3
URP:6225/ PBAF:6225	Applied GIS for Planning and Policy Making	1,3
May include 6 s.h. from these:		
ENTR:9800	Entrepreneurship: Advanced Business Planning	1-3
MBA:8140	Corporate Financial Reporting	3
MBA:8170	International Economic Environment of the Firm	3
MBA:8180	Managerial Finance	3
MGMT:3200	Individuals, Teams, and Organizations	3
MGMT:4325	Team and Project Management	3
MGMT:9150/ HMP:6360/ PBAF:6278/ RELS:6070/ SPST:6010/ SSW:6247/ URP:6278	Nonprofit Organizational Effectiveness I	3
MGMT:9160/ HMP:6365/ PBAF:6279/ RELS:6075/ SPST:6020/ SSW:6248/ URP:6279	Nonprofit Organizational Effectiveness II	3
PSQF:5165/ EPLS:5165	Introduction to Program and Project Evaluation	3

Combined Programs

M.S./J.D.

The combined Master of Science in business analytics (career subprogram)/Juris Doctor allows students to pursue two degrees simultaneously, earning both more quickly than they would if the degrees were pursued separately. The Department of Business Analytics collaborates with the College of Law to offer the combined program.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the combined program. For more information, see the Juris Doctor, J.D. (College of Law) in the Catalog.

M.S./M.S. in Finance

The combined Master of Science in business analytics (career subprogram)/Master of Science in finance allows students to pursue two degrees simultaneously, earning both more quickly than they would if the degrees were pursued separately. The Department of Business Analytics collaborates with the Department of Finance to offer the combined program.

A single admission application is available for the combined degree program. For more information, see the M.S. in finance in the Catalog.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website.

Applicants must:

- have earned a bachelor's degree from a U.S. college or university, or have earned an equivalent degree from another country;
- submit unofficial transcripts with their application and official transcripts for admission;
- have earned a minimum g.p.a. of at least 3.00 or the international equivalent;
- submit a current résumé that includes information about employment (if applicable), education, extracurricular activities, and community involvement;
- submit a statement of purpose with a maximum length of 500 words; and
- submit two recommendations that must be received within two weeks of the submission deadline.

Applicants whose first language is not English must submit official test scores to verify English proficiency. They can verify English proficiency by submitting official test scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Applicants who use the IELTS test are required to take the on-campus English Proficiency Examination.

Application deadlines are as follows.

- Priority deadline: December 15
- International student deadline: March 15
- Domestic student deadline: June 15

Academic Plans

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

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Course	Title	Hours
Academic Career		
Any Semester		
40 s.h. of graduate level coursework must be completed; up to 6 s.h. of graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
Maintain at least a 2.75 cumulative and program GPA.		
	Hours	**0**
First Year		
Any Semester		
Meet with your Career Management coach and Professional Director.		
Attend Career Management Center sessions offered.		
Apply to and secure a summer internship or arrange a summer research project.		
	Hours	**0**
Fall		
BAIS:6050	Data Management and Visual Analytics	3
BAIS:6040 or BAIS:6060	Data Programming in Python or Data Programming in R	3
BAIS:9100	Data and Decisions	3
BAIS:9400	Professional Development and Business Acumen [b]	1
Elective course [c]		3
Arrange for the Career Management Center to review updated resume, then upload to Handshake.		
	Hours	**13**
Spring		
BAIS:6070	Data Science	3
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen [b]	1
MBA:8130	Business Communication [d]	1
Elective course [c]		3
Elective course [c]		3
Complete end of semester employment placement survey as requested by Career Management.		
	Hours	**14**
Summer		
Internship: complete a summer internship [e]		
Research: complete a summer research project [e]		
	Hours	**0**
Second Year		
Any Semester		
Meet with your Career Management coach and Professional Director.		
Attend Career Management Center sessions offered.		
	Hours	**0**
Fall		
BAIS:6120	Analytics Experience	3
MBA:8130	Business Communication [d]	1
Elective course [c]		3
Elective course [c]		3
Elective course [c]		3
Complete end of semester employment placement survey as requested by Career Management.		
Verify completion of all degree requirements with program administrator.		
Apply to and secure post-graduation employment.		
	Hours	**13**
	Total Hours	**40**

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

b BAIS:9400 is taken during both fall and spring of the first year for a total of 2 s.h.

c Choose from a pre-approved elective list or contact academic advisor for consideration and approval of another course.

d MBA:8130 is taken during both first year spring and second year fall for a total of 2 s.h.

e Choose between a summer internship or summer research project.