Business Analytics, MS

The digital revolution has generated vast amounts of data, presenting challenges and opportunities for businesses to gain a competitive edge by mastering this data. Business analytics specialists bridge this gap, and the Master of Business Analytics program, offered in full-time and part-time formats, addresses the need to manage and analyze data for business decision-making.

The full-time STEM-designated program in Iowa City spans two semesters and includes core courses, a capstone, and electives in three subprogram areas: artificial intelligence and machine learning, artificial intelligence and technology management, and finance analytics. The part-time program offers online analytics and business elective courses, with occasional in-person business electives in Des Moines. Graduate certificates in artificial intelligence and machine learning or artificial intelligence and technology management can be embedded into the part-time program without taking any additional coursework through appropriate elective selection.

The program equips students with skills to transform raw data into actionable insights, moving beyond descriptive and diagnostic analytics to predictive and prescriptive analytics.

Learning Outcomes

Graduates will exhibit knowledge and skills relevant to data and its applications in business. They will demonstrate competence in the subareas of:

- descriptive analytics;
- predictive analytics; and
- prescriptive analytics.

Graduates will create and communicate solutions to data-related business problems that impact their organizations and communities. They will:

- approach, address, and solve a loosely defined business problem requiring the use, exploration, and analysis of data; and
- communicate effectively through oral, written, and visual forms.

Graduates will understand and explore ethical issues related to the use of data in the modern world. They will:

- contemplate ethical issues arising in their own work; and
- express a working knowledge of the major ethical issues facing the business analytics profession, supported with examples from current events.

Graduates will demonstrate the ability to be effective team members in a diverse and complex world. They will:

- engage in effective team processes; and
- lead and support others to achieve collective goals.

Full-Time Programs

The full-time Master of Science program in business analytics requires a minimum of 33 s.h. of graduate credit. Transfer credit may be accepted with approval from the program. A Graduate College major program grade-point average (GPA) and a UI cumulative GPA of at least 2.75 is required in all coursework. The degree offers three subprograms: artificial intelligence and machine learning, artificial intelligence and technology management, and finance analytics.

The full-time MS in business analytics requires the following coursework.

Requirements	Hours
Core Courses	24
Subprogram Courses	9

Core Courses

Students in all subprograms take the following required courses for a total of 24 s.h.

Course #	Title	Hours
All of these (24 s.h.):		
BAIS:6040	Data Programming in Python	3
BAIS:6050	Data Management	3
BAIS:6070	Data Science	3
BAIS:6120	Analytics Experience	3
BAIS:6140	Visual Analytics	3
BAIS:6250	Applied Deep Learning	3
BAIS:7110	Managerial Communication	1
BAIS:7120	Advanced Technical Communication	1
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen	1

Subprogram Courses

Artificial Intelligence and Machine Learning

This subprogram provides students with a deeper understanding of artificial intelligence (AI) technologies within a business context.

The MS in business analytics with an artificial intelligence and machine learning subprogram requires the following coursework.

Course #	Title	Hours
All of these (9 s.h.):		
BAIS:6100	Text Analytics	3
BAIS:6105	Social Analytics	3
BAIS:6260	Generative Artificial Intelligence	3

Artificial Intelligence and Technology Management

This subprogram prepares professionals to lead in technology-driven environments, focusing on the intersection of technology and management to equip students with the skills to navigate and lead in a digital world.

The MS in business analytics with a subprogram in artificial intelligence and technology management requires the following coursework.

Course #	Title	Hours
All of these (9 s.h.):		
BAIS:6210	Data Leadership and Management	3

BAIS:6240	Value Creation Using Artificial Intelligence	3
BAIS:9140	Agile Project Management	3

Finance Analytics

This subprogram offers students an interdisciplinary path, i.e., a business analytics degree with a focus on data-driven decision making in finance, preparing them for specific business domains.

The MS in business analytics with a subprogram in finance analytics requires the following coursework.

Course #	Title	Hours
All of these (9 s.h.):		
BAIS:6100	Text Analytics	3
FIN:9300	Corporate Finance	3
MBA:8180	Managerial Finance	3

Professional Program

The part-time Master of Science program in business analytics (professional) requires a minimum of 30 s.h. of graduate credit. Students must have a Graduate College major program grade-point average (GPA) and a UI cumulative GPA of at least 2.75 to satisfy degree requirements.

With program approval, students may count up to a maximum 6 s.h. of graduate transfer credit toward program coursework requirements. Students who wish to include the 15 s.h. earned from the Certificate in Business Analytics toward the business analytics master's degree may do so as long as the coursework is not more than 10 years old from the date when the business analytics master's degree is conferred.

The part-time Master of Science program in business analytics (professional) requires the following coursework.

Requirements	Hours
Core Courses	18
Electives	12

The core courses develop competency in business analytics skills and key functional concepts while elective coursework allows students to deepen or broaden their proficiencies. Students must complete all course prerequisites before taking a given course. Students should consult MyUI for course availability and/or discuss course offerings with their advisor.

Core Courses

Course #	Title	Hours
All of these:		
BAIS:6040	Data Programming in Python	3
BAIS:6050	Data Management	3
BAIS:6070	Data Science	3
BAIS:6140	Visual Analytics	3
BAIS:9110	Advanced Analytics	3
One of these:		
BAIS:9100	Data and Decisions	3
MBA:8150	Data and Decisions	3

If a core course is waived, it must be replaced with an approved analytics elective to reach the 30 s.h. of graduate credit.

Electives

The following list includes all approved electives. Not all courses are offered on a regular basis.

Course #	Title	Hours
12 s.h. from these:		
BAIS:6060	Data Analysis With R	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:6150	Financial Analytics	3
BAIS:6180	Healthcare Analytics	3
BAIS:6190	Forecasting	3
BAIS:6210	Data Leadership and Management	3
BAIS:6230	People Analytics	3
BAIS:6240	Value Creation Using Artificial Intelligence	3
BAIS:6250	Applied Deep Learning	3
BAIS:6260	Generative Artificial Intelligence	3
BAIS:6280	Cybersecurity	3
BAIS:9010	Contemporary Topics in Analytics	1-3
BAIS:9130	Lean Process Improvement	3
BAIS:9140	Agile Project Management	3
MKTG:9310	Marketing Analytics	3
May include 6 s.h. from these:		
ACCT:9020	Strategic Cost Analysis	3
ACCT:9040	Financial Statement Analysis and Forecasting	3
BAIS:9300	Innovations in Technology	3
ECON:9100	Digital Economics	3
ENTR:9100	Entrepreneurship and Innovation	3
ENTR:9200	Entrepreneurial Finance	3
ENTR:9300	Design Thinking	3
ENTR:9450	Strategic Management of Technology and Innovation	3
ENTR:9500	Managing the Growth Business	3
FIN:9130	Corporate Risk Management and Insurance	3
FIN:9140	Enterprise Risk Management	3
FIN:9150	Financial Modeling and Firm Valuation	3
FIN:9160	Quantitative Finance and Machine Learning	3
FIN:9200	Portfolio Management	3
FIN:9210	Derivatives	3
FIN:9220	Fixed Income Securities	3
FIN:9230	Real Estate Finance and Investments	3
FIN:9240	International Finance	3
FIN:9300	Corporate Finance	3
FIN:9310	Corporate Financial Strategy	3
FIN:9350	Wealth Management	3

MBA:8110	Marketing Management	3
MBA:8120	Management in Organizations	3
MBA:8130	Business Communication	3
MBA:8140	Corporate Financial Reporting	3
MBA:8160	Managerial Economics	3
MBA:8180	Managerial Finance	3
MBA:8240	Operations and Supply Chain	3
MBA:8300	Foundations in Strategy	3
MBA:8430	Communication With Artificial Intelligence and Business Technology	3
MBA:8500	Seminar in International Business	3
MBA:9130	Leadership Communication and Story	3
MGMT:9090	Influence and Constructive Persuasion	3
MGMT:9091	Corporate Social Responsibility and Sustainability	3
MGMT:9092	Effective Managerial Communication	3
MGMT:9110	Dynamics of Negotiations	3
MGMT:9120	Leadership and Personal Development	3
MGMT:9130	Strategic Management of Change	3
MGMT:9170	Human Resources Analytics	3
MGMT:9185	Project Management	3
MGMT:9210	Law and Ethics	3
MGMT:9220	Maximizing Team Performance	3
MGMT:9230	Managing and Preventing Conflict	3
MGMT:9240	Inclusive Leadership	3
MGMT:9250	Managing Employee Performance	3
MGMT:9260	Strategic Employee Development	3
MGMT:9270	Human Resource Management	3
MGMT:9290	Global Business Management	3
MKTG:9015	Social Media Marketing	3
MKTG:9120	Customer Relationship Management	3
MKTG:9155	Digital Marketing Insights, Strategies, and Applications	3
MKTG:9170	Business to Business Marketing	3
MKTG:9190	International Marketing	3
MKTG:9320	Strategic Brand Positioning	3
MKTG:9330	Product and Portfolio Strategy	3
MKTG:9340	Customer Analysis	3
MKTG:9350	Marketing Communication and Promotions	3
MKTG:9370	Customer Experience	3

Combined Programs

MS in Business Analytics (Professional Subprogram)/MBA

The Department of Business Analytics collaborates with the Iowa MBA Program to offer a combined Master of Science in business analytics (professional)/Master of Business Administration degree option. This combined program allows students to pursue two degrees simultaneously, earning both more quickly than they would if each degree were pursued separately.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the combined degree program.

For information about the MBA, see the Master of Business Administration, MBA section of 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.

Full-Time Subprograms

Application criteria includes an online application; a résumé (include information about employment, education, extracurricular activities, and community involvement); a statement of purpose (250–500 words); academic transcripts (unofficial transcripts may be submitted with an application; official transcripts will be required for admission); earned bachelor's degree from a U.S. college or university with a minimum grade-point average of 3.00 on a 4.00 scale or have earned an equivalent from another country; and TOEFL/IELTS/Duolingo scores for international students (may be waived; see application website for details).

Visit the full-time MS in business analytics Admissions page on the Tippie College of Business website for full admission details.

Professional Subprogram

Please see the Part-time Master of Business Analytics Admissions on the Tippie College of Business website for information about admission to the MS in business analytics professional subprogram.

Career Advancement

The Tippie Graduate Career Services team offers multiple resources to help students in their career development journey. Visit Graduate Career Services on the Tippie College of Business website for details.

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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- Finance Analytics Subprogram [p. 5]
- Professional Subprogram [p. 5]

Artificial Intelligence and Machine Learning Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
33 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
Graduate College major program GPA and cumulative GPA of at least 2.75 is required.		
Summer Pre-Work: Data and Decisions Bootcamp [b]		
	Hours	**0**
First Year		
Any Semester		
Meet with your Career Services coach and attend offered sessions.		
	Hours	**0**
Fall		
BAIS:6040	Data Programming in Python [c]	3
BAIS:6050	Data Management	3
BAIS:6070	Data Science	3
BAIS:6100	Text Analytics [d]	3
BAIS:7110	Managerial Communication [d]	1
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen [c]	1
	Hours	**17**
Spring		
BAIS:6105	Social Analytics [c]	3
BAIS:6120	Analytics Experience	3
BAIS:6140	Visual Analytics	3
BAIS:6250	Applied Deep Learning	3
BAIS:6260	Generative Artificial Intelligence [d]	3
BAIS:7120	Advanced Technical Communication	1
Complete degree application in MyUI [e]		
	Hours	**16**
	Total Hours	**33**

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 This 2-semester long master's degree requires students to have some foundational analytics and Excel skills. All students are required to complete a free online asynchronous bootcamp during the summer prior to starting the program.

c First 8 weeks of the semester.

d Second 8 weeks of the semester.

e See Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor.

Artificial Intelligence and Technology Management Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
33 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
Graduate College major program GPA and cumulative GPA of at least 2.75 is required.		
Summer Pre-Work: Data and Decisions Bootcamp [b]		
	Hours	**0**
First Year		
Any Semester		
Meet with your Career Services coach and attend offered sessions.		
	Hours	**0**
Fall		
BAIS:6040	Data Programming in Python [c]	3
BAIS:6050	Data Management	3
BAIS:6070	Data Science	3
BAIS:6210	Data Leadership and Management [d]	3
BAIS:7110	Managerial Communication [d]	1
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen [c]	1
	Hours	**17**
Spring		
BAIS:6120	Analytics Experience	3
BAIS:6140	Visual Analytics	3
BAIS:6240	Value Creation Using Artificial Intelligence [d]	3
BAIS:6250	Applied Deep Learning	3
BAIS:7120	Advanced Technical Communication	1
BAIS:9140	Agile Project Management [c]	3
Complete degree application in MyUI [e]		
	Hours	**16**
	Total Hours	**33**

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 This 2-semester long master's degree requires students to have some foundational analytics and Excel skills. All students are required to complete a free online asynchronous bootcamp during the summer prior to starting the program.

c First 8 weeks of the semester.

d Second 8 weeks of the semester.
e See Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor.

Finance Analytics Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
33 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
Graduate College major program GPA and cumulative GPA of at least 2.75 is required.		
Summer Pre-Work: Data and Decisions Bootcamp [b]		
	Hours	**0**
First Year		
Any Semester		
Meet with your Career Services coach and attend offered sessions.		
	Hours	**0**
Fall		
BAIS:6040	Data Programming in Python [c]	3
BAIS:6050	Data Management	3
BAIS:6070	Data Science	3
BAIS:6100	Text Analytics [d]	3
BAIS:7110	Managerial Communication [d]	1
BAIS:9110	Advanced Analytics	3
BAIS:9400	Professional Development and Business Acumen [c]	1
	Hours	**17**
Spring		
BAIS:6120	Analytics Experience	3
BAIS:6140	Visual Analytics	3
BAIS:6250	Applied Deep Learning	3
BAIS:7120	Advanced Technical Communication	1
FIN:9300	Corporate Finance [d]	3
MBA:8180	Managerial Finance [c]	3
Complete degree application in MyUI [e]		
	Hours	**16**
	Total Hours	**33**

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 This 2-semester long master's degree requires students to have some foundational analytics and Excel skills. All students are required to complete a free online asynchronous bootcamp during the summer prior to starting the program.
c First 8 weeks of the semester.
d Second 8 weeks of the semester.
e See Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor.

Professional Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
30 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a, b]		
Individual course waivers are not reflected within sample plans. Check with your advisor and/or consult degree audit for approved waivers.		
Students may also choose to earn a graduate/professional certificate along with the degree by focusing electives. Check with your advisor on possible options and to have a certificate added.		
	Hours	**0**
First Year		
Fall		
BAIS:6040	Data Programming in Python	3
BAIS:9100 or MBA:8150	Data and Decisions or Data and Decisions	3
	Hours	**6**
Spring		
BAIS:6070	Data Science	3
Elective course [c, d]		3
	Hours	**6**
Summer		
BAIS:6050	Data Management	3
	Hours	**3**
Second Year		
Fall		
BAIS:9110	Advanced Analytics	3
Elective course [c, d]		3
	Hours	**6**
Spring		
Elective course [c, d]		3
Elective course [c, d]		3
	Hours	**6**
Summer		
BAIS:6140	Visual Analytics	3
Complete Degree Application in MyUI [e]		
	Hours	**3**
	Total Hours	**30**

a Analytics courses are offered in an 8-week format in fall, spring, and summer online. Consult with your advisor and/or the course schedule for more details.
b 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.
c Students may take up to 6 s.h. of business electives through the Iowa MBA Program, which are offered in an 8-week format. Business electives are offered fall, spring and summer and a select number of electives offered in winter session. Consult with your advisor and/or the schedule for more details.

d See the General Catalog for list of approved courses.
e See Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor.