INFORMATION SYSTEMS, BACHELOR OF SCIENCE (B.S.)

The mission of the Bachelor of Science in Information Systems is to prepare students for successful careers as information systems professionals through a curriculum that combines technical computing knowledge, skills and techniques with relevant business knowledge.

INFO 202 and MATH 211 are prerequisites for many upper-level information systems courses. Students may wish to choose their upper-level information systems electives to gain enhanced proficiency in the following areas:

Course	Title	Hours
Application development		
INFO 450	Programming for Business Analytics	3
INFO 452	AI Services for Business	3
Business analysis		
INFO 462	Design of AI Systems	3
INFO 511	Data Reengineering	3
INFO 532	Business Process Reengineering	3
Information and communications technology		
INFO 472	Infrastructure Services	3
INFO 474	Advanced Networking and Security	3

Program educational objectives

The major in information systems provides a curriculum in which:

- Graduates will demonstrate the ability to apply the most current technologies to support the secure delivery and management of information systems.
- Graduates will advance their careers through continuing education, professional development, and cultivating resilience.
- Graduates will have the knowledge, ability, and strategic skills to work effectively to support the information systems needs of the business community.

Student learning outcomes

Upon completing this program, students will have an ability to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions
- Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
- Communicate effectively in a variety of professional contexts
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
- Support the delivery, use and management of information systems within an information systems environment

Special requirements

The admission requirements for the School of Business (https://bulletin.vcu.edu/undergraduate/business/undergraduate-information/academic-policies/) detail the deadlines and other requirements for students to be admitted to one of these major programs of study. The following courses must be completed before the student may declare a specific business major: ACCT 203, ACCT 204, BUSN 201 or BUSN 205, BUSN 212 or MATH 200, BUSN 225, ECON 210, ECON 211, UNIV 111, UNIV 112, and UNIV 200.

The School of Business has special academic policies (http://bulletin.vcu.edu/undergraduate/business/undergraduate-information/academic-policies/), including policies on transfer credits, that apply to all undergraduate degrees.

All baccalaureate degree programs in the School of Business require successful completion of the business knowledge exam as administered in BUSN 499.

Students may need to take additional mathematics courses as prerequisites to BUSN 212 or MATH 200. These credits will count as open electives in the degree program.

A maximum of six credits in INFO 491 may be applied to the degree.

No more than six credits from the BUSN 16X Digital Literacy courses may be applied to the degree.

INTL 493 may not be counted toward a business degree.

Credit for SPCH 121 or SPCH 321 will substitute for BUSN 225, and no more than three credits of these courses may be applied toward a business degree. Students who earned a minimum grade of B in either ECON 203 or ECON 205 at VCU may substitute that credit for ECON 210.

The pass/fail grading policy may not be used for many course requirements. Students should check with their academic adviser before taking the pass/fail grading option.

Degree requirements for Information Systems, Bachelor of Science (B.S.)

Course	Title	Hours
General education (https://bulletin.vcu.edu/undergraduate/undergraduate-study/general-education-curriculum/)		
Select 30 credits of general education courses in consultation with an adviser.		30
Major requirements		
• Major core requirements		
INFO 300	Information Technology Infrastructure	3
INFO 320	Artificial Intelligence for Business Intelligence	3
INFO 350	Intermediate Programming	3
INFO 361	Systems Analysis and Design	3
INFO 364	Database Systems	3
INFO 370	Fundamentals of Data Communications	3
INFO 465	Projects in Information Systems	3
• Major electives		
Select courses from the list below.		9

Ancillary requirements

• Ancillary core requirements

ACCT 203 & ACCT 204	Introduction to Accounting I and Introduction to Accounting II	6
BUSN 225	Winning Presentations	3
BUSN 301	Career and Professional Development	1
BUSN 499	Business Knowledge Exam	0
ECON 210	Principles of Microeconomics (satisfies general education BOK for social/behavioral sciences and/or AOI for global perspectives)	3
ECON 211	Principles of Macroeconomics	3
FIRE 311	Financial Management	3
INFO 202	Introduction to Information Systems Development Technologies	3
INFO 360	Business Information Systems	3
MATH 211	Mathematical Structures	3
MKTG 301	Marketing Principles	3
MGMT 303	Creativity and Ideation	3
MGMT 310	Managing People in Organizations	3
MGMT 434	Strategic Management	3
SCMA 301	Business Statistics I	3
SCMA 320	Production/Operations Management	3

• Additional ancillary requirements

BUSN 201	Foundations of Business [1]	3
or BUSN 205	Introduction to the World of Business	
BUSN 212	Business Problem Solving and Analysis (either satisfies general education quantitative foundations)	4
or MATH 200	Calculus with Analytic Geometry I	
BUSN 323	Legal Environment of Business	3
or FIRE 325	Real Estate Law	
or FIRE 459	Insurance Law	

Open electives

Select any courses. [2]	10
Total Hours	**120**

[1]

BUSN 205 satisfies general education AOI for global perspectives.

[2]

Students may choose electives to reach the minimum total of 120 credits.

The minimum number of credit hours required for this degree is 120.

Major electives

Course	Title	Hours
BUSN 400 & BUSN 401	Principles of Consulting and International Consulting Practicum (if this option is chosen, both must be taken)	6
INFO 450	Programming for Business Analytics	3
INFO 451	Advanced Technology for Web Development	3
INFO 452	AI Services for Business	3
INFO 462	Design of AI Systems	3
INFO 463	Business Process Engineering	3
INFO 468	Information Engineering	3
INFO 472	Infrastructure Services	3
INFO 474	Advanced Networking and Security	3
INFO 481	Information Technology Auditing	3
INFO 482	Introduction to Enterprise Resource Planning Systems	3
INFO 491	Topics in Information Systems	1-3
INFO 492	Independent Study in Information Systems (requires departmental approval)	1-3
INFO 493	Internship in Information Systems (requires departmental approval)	3
INFO 511	Data Reengineering	3
INFO 532	Business Process Reengineering	3
SCMA 430	Data Management and Visualization	3
SCMA 440	Data Mining and Forecasting	3

What follows is a sample plan that meets the prescribed requirements within a four-year course of study at VCU. Please contact your adviser before beginning course work toward a degree.

Recommended course sequence/plan of study

Freshman year

Fall semester		Hours
UNIV 111 Play course video for Introduction to Focused Inquiry: Investigation and Communication	Introduction to Focused Inquiry: Investigation and Communication (satisfies general education UNIV foundations)	3
General education course		3
General education course		3
General education course		3
Open elective (prerequisite to BUSN 212 suggested)		3
	Term Hours:	**15**

Spring semester		
BUSN 212	Business Problem Solving and Analysis (satisfies general education quantitative foundations)	4
BUSN 225	Winning Presentations	3
UNIV 112 Play course video for Focused Inquiry II	Focused Inquiry II (satisfies general education UNIV foundations)	3
General education course		3
Open elective		3
	Term Hours:	**16**

Sophomore year

Fall semester

ACCT 203	Introduction to Accounting I	3
BUSN 201 or BUSN 205	Foundations of Business or Introduction to the World of Business	3
ECON 210	Principles of Microeconomics (satisfies general education BOK for social/behavioral sciences and/or AOI for global perspectives)	3
UNIV 200	Advanced Focused Inquiry: Literacies, Research and Communication (satisfies general education UNIV foundations)	3
General education course		3
	Term Hours:	**15**
Spring semester		
ACCT 204	Introduction to Accounting II	3
BUSN 301	Career and Professional Development	1
ECON 211	Principles of Macroeconomics	3
INFO 202	Introduction to Information Systems Development Technologies	3
MATH 211	Mathematical Structures	3
MKTG 301	Marketing Principles	3
	Term Hours:	**16**
Junior year		
Fall semester		
INFO 300	Information Technology Infrastructure	3
INFO 360	Business Information Systems	3
INFO 361	Systems Analysis and Design	3
MGMT 310	Managing People in Organizations	3
SCMA 301	Business Statistics I	3
	Term Hours:	**15**
Spring semester		
INFO 350	Intermediate Programming	3
INFO 364	Database Systems	3
INFO 370	Fundamentals of Data Communications	3
SCMA 320	Production/Operations Management	3
Major elective		3
	Term Hours:	**15**
Senior year		
Fall semester		
BUSN 323 or FIRE 325 or FIRE 459	Legal Environment of Business or Real Estate Law or Insurance Law	3
FIRE 311	Financial Management	3
INFO 320	Artificial Intelligence for Business Intelligence	3
MGMT 303	Creativity and Ideation	3
Open elective		3
	Term Hours:	**15**
Spring semester		
BUSN 499	Business Knowledge Exam	0
INFO 465	Projects in Information Systems	3
MGMT 434	Strategic Management	3

Major electives		6
Open elective		1
	Term Hours:	**13**
	Total Hours:	**120**

The minimum number of credit hours required for this degree is 120.

Accelerated B.S. and M.S.

The accelerated B.S. and M.S. program allows qualified students to earn both the B.S. and M.S. in Information Systems in a minimum of five years by completing approved graduate courses during the senior year of their undergraduate program. Students in the program may count up to 12 credit hours of graduate courses toward both the B.S. and M.S. degrees. Thus, the two degrees may be earned with a minimum of 139 credits rather than the 151 credits necessary if the two degrees are pursued separately.

Students holding these degrees are prepared for management-level positions in information systems and information technology. Students will focus on practical application of the knowledge gained in the classroom with an emphasis on creativity, innovation and leadership skills.

Entrance to the accelerated program

Interested undergraduate students should consult with their adviser as early as possible to receive specific information about the accelerated program, determine academic eligibility and submit (no later than two semesters prior to graduating with a baccalaureate degree, that is, before the end of the spring semester of their junior year) an Accelerated Program Declaration Form to be approved by the graduate program director. Limited spaces may be available in the accelerated program. Academically qualified students may not receive approval if capacity has been reached.

Minimum qualifications for entrance to this accelerated program include completion of 85 undergraduate credit hours including INFO 350, INFO 361 and INFO 364 ; an overall GPA of 3.25; and a GPA of 3.25 in information systems course work. Students who do not meet the minimum GPA requirements may submit GRE scores to receive further consideration.

Once enrolled in the accelerated program, students must meet the standards of performance applicable to graduate students as described in the "Satisfactory academic progress (https://bulletin.vcu.edu/academic-regs/grad/satisfactory-academic-progress/)" section of the Graduate Bulletin, including maintaining a 3.0 GPA. Guidance to students admitted to the accelerated program is provided by both the undergraduate information systems adviser and the faculty adviser to the graduate program.

Admission to the graduate program

Entrance to the accelerated program enables the student to take the approved shared courses that will apply to the undergraduate and graduate degrees. However, entry into an accelerated program via an approved Accelerated Program Declaration Form does not constitute application or admission into the graduate program. Admission to the graduate program requires a separate step that occurs through a formal application to the master's program, which is submitted through Graduate Admissions no later than a semester prior to graduation with the baccalaureate degree, that is, before the end of the fall semester of the senior year. In order to continue pursuing the master's degree

after the baccalaureate degree is conferred, accelerated students must follow the admission to graduate study requirements outlined in the VCU Bulletin.

Degree requirements

The Bachelor of Science in Information Systems degree will be awarded upon completion of a minimum of 121 credits and the satisfactory completion of all undergraduate degree requirements as stated in the Undergraduate Bulletin. This is one additional credit hour than required for the standalone Bachelor of Science in Information Systems due to the inclusion of INFO 493 which is required for accelerated B.S. to M.S. students.

A maximum of 12 graduate credits may be taken prior to completion of the baccalaureate degree. These graduate credits substitute for required major elective courses or open elective credits for the undergraduate degree. These courses are shared credits with the graduate program, meaning that they will be applied to both undergraduate and graduate degree requirements.

The graduate information systems courses that may be taken as an undergraduate, once a student is admitted to the program, are:

Course	Title	Hours
INFO 520	Data Communications	3
INFO 530	Systems Development	3
INFO 610	Analysis and Design of Database Systems	3
Graduate program elective		3

Recommended course sequence/plan of study

What follows is the recommended plan of study for students interested in the accelerated program beginning in the fall of the junior year prior to admission to the accelerated program in the senior year.

Course	Title	Hours
Junior year		
Fall semester		
INFO 300	Information Technology Infrastructure	3
INFO 360	Business Information Systems	3
INFO 361	Systems Analysis and Design	3
MGMT 310	Managing People in Organizations	3
SCMA 301	Business Statistics I	3
Term Hours:		15
Spring semester		
BUSN 323	Legal Environment of Business	3
or FIRE 325	Real Estate Law	
or FIRE 429	Property and Liability Insurance	
FIRE 311	Financial Management	3
INFO 350	Intermediate Programming	3
INFO 364	Database Systems	3
INFO 370	Fundamentals of Data Communications	3
Term Hours:		15
Senior year		
Fall semester		
INFO 320	Artificial Intelligence for Business Intelligence	3
INFO 520	Data Communications	3
INFO 530	Systems Development	3
INFO 610	Analysis and Design of Database Systems	3
MGMT 303	Creativity and Ideation	3
Term Hours:		15
Spring semester		
BUSN 499	Business Knowledge Exam	0
INFO 465	Projects in Information Systems	3
INFO 493	Internship in Information Systems [1]	3
MGMT 434	Strategic Management	3
SCMA 320	Production/Operations Management	3
Graduate program elective		3
Term Hours:		15
Fifth year		
Fall semester		
INFO 544	Principles of Computer and Information Systems Security	3
INFO 640	Information Systems Management	3
Graduate program elective		3
Term Hours:		9
Spring semester		
Graduate program electives		9
Term Hours:		9

[1]

INFO 493 is required for accelerated program students. Students will take this in the open elective slot (typically two credits) in the senior year of study. Because INFO 493 is a three-credit course, a student in the accelerated program will take one additional credit hour than is required for the standalone baccalaureate program.