INFORMATION SYSTEMS, MASTER OF SCIENCE (M.S.) WITH A CONCENTRATION IN INFORMATION RISK, SECURITY AND ASSURANCE

Program accreditation
Association to Advance Collegiate Schools of Business (http://www.aacsb.edu)

Program goal
The Master of Science in Information Systems program is designed to prepare students for specialized roles using information systems to support organizations. The program is intended to provide a graduate-level, business-technology-oriented curriculum that focuses on the design and development of information systems to solve real-world problems. Graduates of the program are expected to be able to take significant roles in planning, organizing, managing, designing, configuring and implementing systems using state-of-the-art technologies within organizations.

The information risk, security and assurance concentration within the degree is designed primarily for students interested in professional roles in business, industry or government. Program graduates will serve as leaders within the risk, security and assurance community and as strategic partners with the enterprise in which they work. They will stay attuned to and anticipate changes in the risk, security and assurance environment and ensure that security solutions create a sound, competitive and cost-effective advantage for the enterprise.

Student learning outcomes
1. Graduates should be capable of communicating and networking effectively within their profession and within their organizations, serving the profession by applying this knowledge broadly and maintaining key technical expertise in order to sustain required levels of competitiveness.
2. Graduates must have an understanding of information technology as it applies to business contexts and the skill to apply this technology effectively in specific circumstances.
3. Graduates must be able to develop efficient and effective IS solutions using appropriate technologies that can deliver competitive advantages to organizations.
4. Graduates must be able to develop and incorporate changes in the planning and management of IS resources based on an increased understanding of the dynamic changes in the organization, IS and global environments.

VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs
The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the Graduate School website (http://www.graduate.vcu.edu) and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the academic regulations section for additional information on academic regulations for graduate students. (http://bulletin.vcu.edu/academic-reg)

Degree candidacy requirements
A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master’s or doctoral status according to the degree candidacy requirements of the student’s graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student’s faculty regarding the student’s academic achievements and the student’s readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

Visit the academic regulations section for additional information on degree candidacy requirements. (http://bulletin.vcu.edu/academic-reg/grad/candidacy)

Graduation requirements
As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the academic regulations section for additional information on graduation requirements. (http://bulletin.vcu.edu/academic-reg/grad/candidacy)

Other information
School of Business policies and procedures for graduate master’s degree students are available on the school’s website at business.vcu.edu/graduate-studies/current-graduate-students (http://business.vcu.edu/graduate-studies/current-graduate-students).

Apply online at graduate.admissions.vcu.edu (http://wwwgraduate.admissions.vcu.edu).
Admission requirements

<table>
<thead>
<tr>
<th>Degree:</th>
<th>Semester(s) of entry:</th>
<th>Deadline dates:</th>
<th>Test requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S.</td>
<td>Fall</td>
<td>Jul 1</td>
<td>GMAT or GRE*</td>
</tr>
<tr>
<td></td>
<td>Spring</td>
<td>Nov 1</td>
<td></td>
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<tr>
<td></td>
<td>Summer</td>
<td>Mar 1</td>
<td></td>
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</tbody>
</table>

In addition to the general admission requirements of the VCU Graduate School (http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements), applicants must submit an up-to-date resume.

*Test requirements may be waived for candidates with an undergraduate or graduate degree from an accredited U.S. institution with a minimum GPA of 3.25. Waiver request information can be found on the Graduate Studies in Business webpage (https://business.vcu.edu/graduate-studies/how-to-apply).

Degree requirements

Students applying to the Master of Science in Information Systems must show evidence of competence in selected prerequisite areas of information systems including: application programming, systems analysis and design, database, telecommunications and software/hardware security. Evidence of this competence may include formal course work, comparable training within a work environment or significant, relevant and recent work experience in the field. Students enrolled as majors in the program who do not have a formal background or equivalent training must take the appropriate undergraduate courses to satisfy the prerequisites prior to taking master's program courses. Students without an accredited bachelor's degree or post-baccalaureate certificate in fields such as computer science or information systems will likely need to complete several undergraduate prerequisite courses. Prerequisites are determined by the faculty adviser at the time of admission.

In addition to the VCU Graduate School graduation requirements (http://bulletin.vcu.edu/academic-regs/grad/graduation-info), students who do not have a business degree must complete a minimum of two 500-level foundation courses (6 credit hours). Foundation courses may be waived for students who present satisfactory equivalent preparation at either the undergraduate or graduate level. Students who are required to take foundation courses may do so after admission. The foundation courses required will vary depending upon the student's background, career interests and the chosen area of specialization. Students applying to the program should consult with the master's program adviser to determine the foundation courses required for a particular area.

Prerequisite undergraduate courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INFO 202</td>
<td>Introduction to E-business Technologies</td>
<td>3</td>
</tr>
<tr>
<td>INFO 300</td>
<td>Information Technology Infrastructure</td>
<td>3</td>
</tr>
<tr>
<td>INFO 350</td>
<td>Programming</td>
<td>3</td>
</tr>
<tr>
<td>INFO 361</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>INFO 364</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFO 370</td>
<td>Fundamentals of Data Communications</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211</td>
<td>Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>A course in calculus</td>
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</tr>
</tbody>
</table>

Curriculum requirements

Foundation courses

0-6 credits; may be waived for demonstrated equivalence.

- ACCT 507 Fundamentals of Accounting
- or ECON 500 Concepts in Economics
- or FIRE 520 Financial Concepts of Management
- SCMA 524 Statistical Fundamentals for Business Management

Core courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INFO 610</td>
<td>Analysis and Design of Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFO 620</td>
<td>Data Communications</td>
<td>3</td>
</tr>
<tr>
<td>INFO 630</td>
<td>Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>INFO 640</td>
<td>Information Systems Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration courses

- CISS 634 Ethical, Social and Legal Issues in Computer and Information Systems Security | 3
- INFO 614 Data Mining | 3
- INFO/CISS 644 Principles of Computer and Information Systems Security | 3
- INFO 646 Security Policy Formulation and Implementation | 3
- INFO 658 Securing the Internet of Things | 3

Approved elective

Select one of the following:

- INFO 609 Data-centric Re-engineering Analysis/Planning | 3
- INFO 611 Data Re-engineering |
- INFO/CISS 616 Data Warehousing |
- INFO 632 Business Process Engineering |
- INFO 641 Strategic Information Systems Planning |
- INFO 642 Decision Support and Intelligent Systems |
- INFO 643 Information Technology Project Management |
- INFO 664 Information Systems for Business Intelligence |
- INFO 691 Topics in Information Systems |
- INFO 693 Field Project in Information Systems |
- INFO 697 Guided Study in Information Systems |
- SCMA 603 SAP ERP and Supply Chain Management |
- SCMA 632 Statistical Analysis and Modeling |
- SCMA 643 Applied Multivariate Methods |
- SCMA 648 Analytics for Organizational Decision-making |
- SCMA 669 Developing and Implementing Forecasting Methods for Business |

Total Hours 30

Total graduate credit hours required (minimum) 30 (36 if all foundation courses are taken)
Graduate program director
Austen Gouldman
Director, graduate programs
Email: gouldmana@vcu.edu
Phone: (804) 828-4622

Additional contact
Graduate Studies in Business
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Phone: (804) 828-4622

Program website: business.vcu.edu/graduate-studies/ms-in-information-systems (http://business.vcu.edu/graduate-studies/ms-in-information-systems)