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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application development</td>
<td>Advanced Programming</td>
<td>3</td>
</tr>
<tr>
<td>INFO 450</td>
<td>Advanced Programming</td>
<td>3</td>
</tr>
<tr>
<td>INFO 451</td>
<td>Advanced Technology for Web</td>
<td>3</td>
</tr>
<tr>
<td>Business analysis</td>
<td>Business Process Engineering</td>
<td>3</td>
</tr>
<tr>
<td>INFO 463</td>
<td>Business Process Engineering</td>
<td>3</td>
</tr>
<tr>
<td>INFO 468</td>
<td>Information Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Information and communications technology</td>
<td>Infrastructure Services</td>
<td>3</td>
</tr>
<tr>
<td>INFO 472</td>
<td>Infrastructure Services</td>
<td>3</td>
</tr>
<tr>
<td>INFO 474</td>
<td>Advanced Networking and Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Learning goals
The major in information systems provides a curriculum in which:

- Graduates will have the ability to apply the most current technologies to support the secure delivery and management of information systems.
- Graduates will have the academic foundation that enables them to advance their careers through continuing education and professional development.
- Graduates will have the knowledge and ability 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 (http://bulletin.vcu.edu/undergraduate/business/undergraduate-information/) 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.

No more than four credits in physical education 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.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General education (<a href="http://bulletin.vcu.edu/undergraduate/undergraduate-study/general-education-curriculum/">http://bulletin.vcu.edu/undergraduate/undergraduate-study/general-education-curriculum/</a>)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Select 30 credits of general education courses in consultation with an adviser.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major requirements</td>
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<tr>
<td>• Major core requirements</td>
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</tr>
<tr>
<td>INFO 300</td>
<td>Information Technology Infrastructure</td>
<td>3</td>
</tr>
<tr>
<td>INFO 320</td>
<td>Business Intelligence and Data Mining</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>INFO 465</td>
<td>Projects in Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>• Major electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select courses from the list below.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ancillary requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ancillary core requirements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

MMKT 301
Marketing Principles 3

MGMT 303
Creativity and Idestion 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

INFO 450
Programming for Business Analytics 3
INFO 451
Advanced Technology for Web Development 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
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.

Freshman year

Fall semester
UNIV 111
Focused Inquiry I (satisfies general education UNIV foundations) 3

Spring semester
BUSN 212
Business Problem Solving and Analysis (satisfies general education quantitative foundations) 4

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

The minimum number of credit hours required for this degree is 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 (http://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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</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>Graduate program elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### 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.

#### Junior year

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall semester</td>
<td>INFO 300. Information Technology Infrastructure</td>
<td>3</td>
</tr>
<tr>
<td>or INFO 360</td>
<td>Business Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>or INFO 361</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 310</td>
<td>Managing People in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>SCMA 301</td>
<td>Business Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>Term Hours:</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Spring semester</td>
<td>BUSN 323. Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>or FIRE 325</td>
<td>Real Estate Law</td>
<td>3</td>
</tr>
<tr>
<td>or FIRE 429</td>
<td>Property and Liability Insurance</td>
<td>3</td>
</tr>
<tr>
<td>FIRE 311</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>INFO 350</td>
<td>Programming</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>Term Hours:</td>
<td></td>
<td>15</td>
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</tbody>
</table>

#### Senior year

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall semester</td>
<td>INFO 320. Business Intelligence and Data Mining</td>
<td>3</td>
</tr>
<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>MGMT 303</td>
<td>Creativity and Ideation</td>
<td>3</td>
</tr>
<tr>
<td>Term Hours:</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Spring semester</td>
<td>BUSN 499. Business Knowledge Exam</td>
<td>3</td>
</tr>
<tr>
<td>INFO 465</td>
<td>Projects in Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFO 493</td>
<td>Internship in Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 434</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>SCMA 320</td>
<td>Production/Operations Management</td>
<td>3</td>
</tr>
</tbody>
</table>

### Graduate program electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate program elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Term Hours:</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

#### Fifth year

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall semester</td>
<td>INFO 640. Information Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>INFO 644</td>
<td>Principles of Computer and Information Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>Graduate program elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Term Hours:</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Spring semester</td>
<td>Graduate program electives</td>
<td>9</td>
</tr>
</tbody>
</table>

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.

### INFO 202. Introduction to Information Systems Development Technologies. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Introduces students to the technologies used in building information systems in business. Students will be introduced to current or emerging Web languages, business software development environments, user experience and design, Web application servers, and other packages used in creating and running Web applications.

### INFO 250. Introduction to Programming. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: BUSN 171*. Introduces students to writing, testing and debugging Java programs using simple logic and algorithms. Basic Java applets and the graphic user interface are covered. Cannot be used as an elective in the information systems major. *Formerly MGMT 171, SCMA 171.

### INFO 291. Topics in Information Systems. 1-3 Hours.

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

### INFO 300. Information Technology Infrastructure. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: INFO 202, CMSC 245 or CMSC 255. The course introduces principles of computer hardware and software architecture and organization. The focus is on surveying what is likely to be encountered in the IT legacy today, emerging technologies and introducing data structures and algorithms.

### INFO 320. Business Intelligence and Data Mining. 3 Hours.

Semester course; 3 lecture hours. 3 credits. Prerequisite: SCMA 301*, STAT 210 or STAT 212. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Modeling business-related problems using information systems tools and quantitative techniques. Focus is on relevant business and external data, quantitative analysis and presentation of findings. Typical problem situations involve suggested productivity improvements, revenue enhancement opportunities and marketing. *Formerly MGMT 301.
INFO 350. Programming. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 202, INFO 250, CMSC 245 or CMSC 255; and MATH 211, both with a minimum grade of C. Object-oriented programming and algorithmic design are introduced using C# and the .NET Framework. Emphasizes building business applications using the .NET Framework Class Library and the components, events and message handling therein. Intermediate Web application development is also covered. Students cannot receive credit for both CMSC 256 and INFO 350.

INFO 360. Business Information Systems. 3 Hours.
Semester course; 3 lecture hours (delivered online, face-to-face or hybrid). 3 credits. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Provides an understanding of the importance of computer-based information in the success of the firm. Emphasis is on the role of information systems within each of the functional areas of business. Major concepts include data management, decision support and management information systems.

INFO 361. Systems Analysis and Design. 3 Hours.
Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines the concepts, tools and techniques used to develop and support computer-based information systems. Systems planning, analysis, design and implementation are covered. Behavioral and model building aspects of systems development are emphasized throughout.

INFO 364. Database Systems. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 202, INFO 250, CMSC 245 or CMSC 255; and MATH 211, both with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Designed to prepare students for development of systems involving databases and database management.

INFO 370. Fundamentals of Data Communications. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 211 with a minimum grade of C; INFO 300. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Computer networks and data communications. Provides an understanding of the underlying concepts of computer networking. Emphasis is placed on terminology, techniques and issues in networking systems.

INFO 450. Advanced Programming. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 350 with a minimum grade of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Students use Python to implement advanced programming concepts such as recursion, file manipulation and the use of classes to build reusable modules. Students will also use advanced data structures such as Pandas to clean and analyze large data sets. Students cannot receive credit for both CMSC 245/246 and INFO 450.

INFO 451. Advanced Technology for Web Development. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 350 and INFO 364 with minimum grades of C. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). Focuses on the technical aspects of developing systems using Web services and Web server controls to build visually interactive and highly responsive Web applications. Students will learn how various XML APIs (processing, messaging and distributed registries) are used under the umbrella of Web services to support the sharing of data and processes for business applications. The course will integrate the students’ prior knowledge of client-side GUI development with server-side controls, components and behaviors in a multitiered environment that includes database connectivity.

INFO 461. Information Systems Planning and Project Management. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 361. Concentrated study of planning methods and techniques required for defining, planning, integrating and implementing information technology projects consistent with the organizational strategic plan and mission.

INFO 463. Business Process Engineering. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 361. This course is restricted to students who have completed at least 54 credit hours (junior standing). A survey of legacy system re-engineering technologies in which the student becomes familiar with a variety of tools used in practice and has the opportunity to develop applications using these tools under supervision. Selection of technologies is determined each semester.

INFO 465. Projects in Information Systems. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 350, INFO 364 and INFO 370. Students will work in teams, using the Scrum methodology, to execute a semester-long application development project. Students will use the skills acquired from the prerequisites to take a project from a formal business proposal to a finished product. The finished product is delivered through multiple sprints.

INFO 468. Information Engineering. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361 and INFO 364. This course is restricted to students who have completed at least 54 credit hours (junior standing). A study of information engineering as a model-based, data-centric approach to integrating organizational strategic planning with enterprise information systems development. Involves readings, group discussion and case studies.

INFO 472. Infrastructure Services. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 370. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). This course provides an overview of Local Area Network technology and underlying protocols, complemented with a hands-on introduction to LAN administration using network operating systems. Wired and wireless networking fundamentals, network administration security and administration in cloud environments are also covered.

INFO 474. Advanced Networking and Security. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 370. Enrollment is restricted to students who have completed at least 54 credit hours (junior standing). The course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features.
INFO 481. Information Technology Auditing. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to information systems majors who have completed 54 credit hours (junior standing), or students may enroll with permission of the department. The course teaches the role and objectives of information technology audits and the processes that are necessary to properly conduct an IT audit. Case studies introduce students to the process of interpreting audit evidence.

INFO 482. Introduction to Enterprise Resource Planning Systems. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to majors in the School of Business who have completed 54 credit hours (junior standing). This course allows students to develop an appreciation of the impact of enterprise resource planning systems on businesses and to understand the issues involved in the design, implementation and maintenance of these systems. Students also develop practical skills in the use of a commercial enterprise resource planning system.

INFO 491. Topics in Information Systems. 1-3 Hours.
Semester course; 1-3 lecture hours. 1-3 credits. Maximum of 3 credits per course; maximum total of 6 credits for all topics courses. Enrollment restricted to students with junior standing. An in-depth study of a selected business topic, to be announced in advance.

INFO 492. Independent Study in Information Systems. 1-3 Hours.
Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

INFO 493. Internship in Information Systems. 3 Hours.
Semester course; 3 field experience hours. 3 credits. Enrollment is restricted to students with permission of department chair prior to or during advance registration of the semester of credit. Students taking this course must have earned 12 hours of course credit in IS courses at the 300-level or above. Involves students in a meaningful work experience, typically 20 hours per week, in a setting appropriate to the information systems major.