

# Information Systems (ISYS)

## Faculty

**Cash Acrey**, Clinical Assistant Professor  
**Brittany Michelle Bright**, Instructor  
**Susan E. Bristow**, Clinical Assistant Professor  
**David E. Bruce**, Lecturer  
**Timothy P. Cronan**, Professor, M.D. Matthews Endowed Chair in Information Systems  
**David Douglas**, University Professor, Walton College Professorship in Information Systems  
**Joseph Ehrhardt**, Instructor  
**Ron Freeze**, Clinical Associate Professor  
**Hartmut Hoehle**, Associate Professor  
**Erica Holliday**, Instructor  
**Elizabeth Keiffer**, Instructor  
**Phillip D. Kindy**, Instructor  
**Xiao Ma**, Assistant Professor  
**Andrew Mackey**, Instructor  
**Suresh Malladi**, Assistant Professor  
**Beverly McDaniel**, Instructor  
**Jeff Mullins**, Executive in Residence  
**Lisa Pierce**, Instructor  
**Rajiv Sabherwal**, Professor, Edwin and Karlee Bradberry Chair  
**Christina Serrano**, Assistant Professor  
**Pankaj Setia**, Associate Professor  
**Tracy Ann Sykes**, Associate Professor  
**Rhonda A. Syler**, Clinical Assistant Professor  
**Viswanath Venkatesh**, Distinguished Professor, George and Boyce Billingsley Endowed Chair in Information Systems  
**Adriana Wilhelm**, Instructor

Rajiv Sabherwal  
 Department Chair, 204 WCOB, 479-575-4500  
 Information Systems Department Website (<https://information-systems.uark.edu>)

The curriculum in information systems is designed to prepare graduates for careers in solving business problems with applications of computer technology.

Graduates with a degree in Information Systems are sought by hundreds of companies for many different types of positions, such as programmer, analyst, database administrator, and web developer, among others.

Graduates are now programming, analyzing and designing systems, consulting, teaching, and solving business problems across the country.

Three concentrations are offered:

- Business Analytics
- Enterprise Resource Planning
- Enterprise Systems

The department also offers two minors: one in business analytics and one in information systems for business students.

## Information Systems Major Requirements

The major in Information Systems requires 24 hours of major and collateral courses in the discipline as well as satisfying the other

requirements for the B.S.B.A. degree. A maximum of 27 hours is allowed in the Information Systems major or discipline field of study (i.e., core, major, electives) unless the extra courses are part of an interdisciplinary minor. The Information Systems department encourages its majors to seek an interdisciplinary minor. See an adviser for selection of courses.

NOTE: Course requirements in the Information Systems major total 24 credit hours. Because of prerequisites, students should allow two full years (24 months) to complete this coursework. Prerequisites are strictly enforced.

### Course Requirements in the Major for All Concentrations 24

ISYS 2263	Principles of Information Systems (Sp, Fa)	
ISYS 3293	Systems Analysis and Design (Sp, Fa)	
ISYS 3393	Business Application Development Fundamentals (Sp)	
ISYS 4283	Business Database Systems (Fa)	
ISYS 4363	Business Project Development (Sp)	
ISYS 4213	ERP Fundamentals (Sp, Fa)	

Note: These required courses represent a common body of knowledge for all information systems majors. Majors must select one of the following concentrations and must complete six additional hours of coursework in the elected concentration.

Maximum of 27 hours of ISYS courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.

<b>Junior/Senior Level Business Electives</b>		12
<b>Concentration Courses</b>		6
<b>Total Hours</b>		42

<sup>1</sup> CSCE 2004 Programming Foundations I (Sp, Fa) is recommended as a general education elective.

## Business Analytics Concentration

ISYS 4193	Business Analytics and Visualization (Fa)	3
ISYS 4293	Business Intelligence (Sp)	3

	Units	
	Fall	Spring
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa)	3	
MATH 2053 Finite Mathematics (Sp, Su, Fa)	3	
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003) (Sp, Su, Fa)	3	
WCOB 1111 Freshman Business Connection (Fa)	1	
BLAW 2013 The Legal Environment of Business (ACTS Equivalency = BLAW 2003) (Sp, Su, Fa)	3	
ISYS 1120 Computer Competency Requirement (Sp, Su, Fa)	0	
U.S. History or Political Science - University Core	3	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa)		3
ACCT 2013 Accounting Principles (Sp, Su, Fa)		3
WCOB 1033 Data Analysis and Interpretation (Sp, Su, Fa)		3
ECON 2023 Principles of Microeconomics (ACTS Equivalency = ECON 2203) (Sp, Su, Fa)		3

Natural Science - University Core		4
Year Total:	16	16

Second Year	Units	
	Fall	Spring
MGMT 2053 Business Foundations (Sp, Su, Fa)	3	
ISYS 2103 Business Information Systems (Sp, Su, Fa)	3	
MATH 2043 Survey of Calculus (ACTS Equivalency = MATH 2203) (Sp, Su, Fa)	3	
Social Science - University Core	3	
Fine Arts/Humanities - University Core	3	
SCMT 2103 Introduction to Supply Chain Management (Sp, Fa)		3
MGMT 2103 Managing People and Organizations (Sp, Su, Fa)		3
ECON 2013 Principles of Macroeconomics (ACTS Equivalency = ECON 2103) (Sp, Su, Fa)		3
ISYS 2263 Principles of Information Systems (Sp, Fa)		3
Natural Science - University Core		4
Year Total:	15	16

Third Year	Units	
	Fall	Spring
FINN 3043 Principles of Finance (Sp, Su, Fa)	3	
MKTG 3433 Introduction to Marketing (Sp, Su, Fa)	3	
ISYS 3293 Systems Analysis and Design (Sp, Fa)	3	
Junior/Senior Business Electives	3	
ISYS 3393 Business Application Development Fundamentals (Sp)		3
ISYS 4213 ERP Fundamentals (Sp, Fa)		3
MGMT 3013 Strategic Management (Sp, Su, Fa)		3
Junior/Senior Business Electives		3
General Education Electives		3
Year Total:	12	15

Fourth Year	Units	
	Fall	Spring
ISYS 4283 Business Database Systems (Fa)	3	
ISYS 4193 Business Analytics and Visualization (Fa)	3	
Junior/Senior Business Electives	6	
General Education Electives	3	
ISYS 4293 Business Intelligence (Sp)		3
ISYS 4363 Business Project Development (Sp)		3
Fine Arts/Humanities		3
General Education Electives		6
Year Total:	15	15

Total Units in Sequence: 120

\* Must be completed prior to or as a co-requisite to WCOB 1033 Data Analysis and Interpretation.

\*\* Must be completed prior to MGMT 3013 Strategic Management.

\*\*\* Must be completed prior to taking any 3000 or 4000-level business courses

## Information Systems Major Requirements

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ISYS 3293	Systems Analysis and Design (Sp, Fa)	
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<b>Junior/Senior Level Business Electives</b>	12
<b>Concentration Courses</b>	6
<b>Total Hours</b>	42

<sup>1</sup> CSCE 2004 Programming Foundations I (Sp, Fa) is recommended as a general education elective.

## Enterprise Resource Planning Concentration

ISYS 4223	ERP Configuration and Implementation (Fa)	3
ISYS 4233	Seminar in ERP Development (Sp)	3
<b>Total Hours</b>		6

## Information Systems B.S.B.A. with Enterprise Resource Planning Concentration Eight-Semester Degree Program:

Students wishing to follow the eight-semester degree plan for Information Systems should see the Eight-Semester Degree Policy (<http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy>) in the Academic Regulations chapter for university requirements of the program.

Courses in BOLD must be taken in the designated semester. Courses in ITALIC may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

First Year	Units	
	Fall	Spring
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa)	3	
MATH 2053 Finite Mathematics (Sp, Su, Fa)	3	
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003) (Sp, Su, Fa)	3	
WCOB 1111 Freshman Business Connection (Fa)	1	
BLAW 2013 The Legal Environment of Business (ACTS Equivalency = BLAW 2003) (Sp, Su, Fa) <sup>1</sup>	3	
ISYS 1120 Computer Competency Requirement (Sp, Su, Fa)	0	
U.S. History or Political Science Course	3	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa)		3
ACCT 2013 Accounting Principles (Sp, Su, Fa)		3
WCOB 1033 Data Analysis and Interpretation (Sp, Su, Fa)		3
ECON 2023 Principles of Microeconomics (ACTS Equivalency = ECON 2203) (Sp, Su, Fa)		3
Natural Science Course		4
Year Total:	16	16

Second Year	Units	
	Fall	Spring
MGMT 2053 Business Foundations (Sp, Su, Fa)	3	
ISYS 2103 Business Information Systems (Sp, Su, Fa) <sup>1</sup>	3	
MATH 2043 Survey of Calculus (ACTS Equivalency = MATH 2203) (Sp, Su, Fa) <sup>2</sup>	3	
Social Science	3	
Fine Art/Humanities	3	
SCMT 2103 Introduction to Supply Chain Management (Sp, Fa) <sup>1</sup>		3
MGMT 2103 Managing People and Organizations (Sp, Su, Fa) <sup>1</sup>		3
ECON 2013 Principles of Macroeconomics (ACTS Equivalency = ECON 2103) (Sp, Su, Fa) <sup>2</sup>		3
ISYS 2263 Principles of Information Systems (Sp, Fa)		3
Natural Science		4
Year Total:	15	16

Third Year	Units	
	Fall	Spring
FINN 3043 Principles of Finance (Sp, Su, Fa) <sup>1</sup>	3	
MKTG 3433 Introduction to Marketing (Sp, Su, Fa) <sup>1</sup>	3	
ISYS 3293 Systems Analysis and Design (Sp, Fa)	3	

Junior Senior Business Electives	3	
ISYS 3393 Business Application Development Fundamentals (Sp)		3
ISYS 4213 ERP Fundamentals (Sp, Fa)		3
MGMT 3013 Strategic Management (Sp, Su, Fa)		3
Junior Senior Business Electives		3
General Education Elective		3
Year Total:	12	15

Fourth Year	Units	
	Fall	Spring
ISYS 4283 Business Database Systems (Fa)	3	
ISYS 4223 ERP Configuration and Implementation (Fa)	3	
Junior Senior Business Electives	6	
General Education Electives	3	
ISYS 4363 Business Project Development (Sp)		3
ISYS 4233 Seminar in ERP Development (Sp)		3
General Education Electives		6
Fine Arts/Humanities - University Core		3
Year Total:	15	15

Total Units in Sequence: 120

- <sup>1</sup> Must be completed prior to MGMT 3013.
- <sup>2</sup> Must be completed prior to taking any 3000 or 4000 level courses.

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Course Requirements in the Major for All Concentrations		24
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ISYS 3393	Business Application Development Fundamentals (Sp)	
ISYS 4283	Business Database Systems (Fa)	
ISYS 4363	Business Project Development (Sp)	
ISYS 4213	ERP Fundamentals (Sp, Fa)	

Note: These required courses represent a common body of knowledge for all information systems majors. Majors must select one of the following concentrations and must complete six additional hours of coursework in the elected concentration.

Maximum of 27 hours of ISYS courses in department (core, major, elective). More than 27 hours allowed if the extra courses are part of interdisciplinary minor or collateral track.

<b>Junior/Senior Level Business Electives</b>	12
<b>Concentration Courses</b>	6
<b>Total Hours</b>	42

<sup>1</sup> CSCE 2004 Programming Foundations I (Sp, Fa) is recommended as a general education elective.

### Enterprise Systems Concentration

ISYS 4453 Introduction to Enterprise Servers (Fa)	3
ISYS 4463 Enterprise Transaction Systems (Sp)	3
<b>Total Hours</b>	6

### Information Systems B.S.B.A. with Enterprise Systems Concentration Eight-Semester Degree Program:

Students wishing to follow the eight-semester degree plan for Information Systems should see the Eight-Semester Degree Policy (<http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy>) for university requirements of the program.

Courses in **BOLD** must be taken in the designated semester. Courses in **ITALIC** may be taken in varied sequences as long as other designated requirements for these courses are met. Although other courses listed are not required to be completed in the designated sequence, the recommendations below are preferred.

First Year	Units	
	Fall	Spring
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa)	3	
MATH 2053 Finite Mathematics (Sp, Su, Fa)	3	
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003) (Sp, Su, Fa)	3	
WCOB 1111 Freshman Business Connection (Fa)	1	
BLAW 2013 The Legal Environment of Business (ACTS Equivalency = BLAW 2003) (Sp, Su, Fa)	3	
ISYS 1120 Computer Competency Requirement (Sp, Su, Fa)	0	
U.S. History or Political Science Course	3	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa)		3
ACCT 2013 Accounting Principles (Sp, Su, Fa)		3
WCOB 1033 Data Analysis and Interpretation (Sp, Su, Fa)		3
ECON 2023 Principles of Microeconomics (ACTS Equivalency = ECON 2203) (Sp, Su, Fa)		3
Natural Science Course		4
<b>Year Total:</b>	16	16

Second Year	Units	
	Fall	Spring
MGMT 2053 Business Foundations (Sp, Su, Fa)	3	
ISYS 2103 Business Information Systems (Sp, Su, Fa) <sup>1</sup>	3	

MATH 2043 Survey of Calculus (ACTS Equivalency = MATH 2203) (Sp, Su, Fa) <sup>2</sup>	3
Social Science Course	3
Fine Art/Humanities Course	3
SCMT 2103 Introduction to Supply Chain Management (Sp, Fa) <sup>1</sup>	3
MGMT 2103 Managing People and Organizations (Sp, Su, Fa) <sup>1</sup>	3
ECON 2013 Principles of Macroeconomics (ACTS Equivalency = ECON 2103) (Sp, Su, Fa)	3
ISYS 2263 Principles of Information Systems (Sp, Fa)	3
Natural Science - University Core	4
<b>Year Total:</b>	15

Third Year	Units	
	Fall	Spring
FINN 3043 Principles of Finance (Sp, Su, Fa) <sup>1</sup>	3	
MKTG 3433 Introduction to Marketing (Sp, Su, Fa) <sup>1</sup>	3	
ISYS 3293 Systems Analysis and Design (Sp, Fa)	3	
Junior Senior Business Electives	3	
ISYS 3393 Business Application Development Fundamentals (Sp)		3
ISYS 4213 ERP Fundamentals (Sp, Fa)		3
MGMT 3013 Strategic Management (Sp, Su, Fa)		3
Junior Senior Business Electives		3
General Education Elective		3
<b>Year Total:</b>	12	15

Fourth Year	Units	
	Fall	Spring
ISYS 4283 Business Database Systems (Fa)	3	
ISYS 4453 Introduction to Enterprise Servers (Fa)	3	
Junior Senior Business Electives	6	
General Education Electives	3	
ISYS 4363 Business Project Development (Sp)		3
ISYS 4463 Enterprise Transaction Systems (Sp)		3
Fine Arts/Humanities		3
General Education Electives		6
<b>Year Total:</b>	15	15

**Total Units in Sequence:** 120

<sup>1</sup> Must be completed prior to MGMT 3013.

<sup>2</sup> Must be completed prior to taking any 3000 or 4000 level business courses.

### Business Analytics Minor

The Walton College offers an interdisciplinary minor in Business Analytics. Analytics are currently used by many companies for applications ranging from strategic management of data to day operations to customer insights to retail analytics to developing and maintaining a competitive edge. The minor requires completion of 15 hours of study with all of the upper

division courses applied toward the minor taken in residence. The 15 hours include:

ISYS 4193	Business Analytics and Visualization (Fa)	3
ISYS 4293	Business Intelligence (Sp)	3
ISYS 4393	Seminar in Applied Business Analytics (Sp)	3
Select two courses (6 hours) from the following:		6
ISYS 4213	ERP Fundamentals (Sp, Fa)	
FINN 3013	Financial Analysis (Sp, Su, Fa)	
ECON 4743	Introduction to Econometrics (Sp)	
ECON 4753	Forecasting (Fa)	
MGMT 4243	Ethics and Corporate Responsibility (Sp, Fa)	
MKTG 3633	Marketing Research (Sp, Fa)	
SCMT 3623	Advanced Inventory Management and Forecasting (Sp, Fa)	

Students who desire to earn a Business Analytics minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for a minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor. All upper division minor requirements must be taken in residence.

## Information Systems Minor for Business Students

The Department of Information Systems offers a minor for Walton College students desiring more knowledge of information systems to assist them in their careers. The minor requires completion of 15 hours of study with all of the upper level courses applied toward the minor in residence. The 15 hours include the following courses:

ISYS 2263	Principles of Information Systems (Sp, Fa)	3
ISYS 3293	Systems Analysis and Design (Sp, Fa)	3
ISYS 3393	Business Application Development Fundamentals (Sp)	3
ISYS 4213	ERP Fundamentals (Sp, Fa)	3
Select one of the following:		3
ISYS 4223	ERP Configuration and Implementation (Fa)	
Any 3-hour Junior/Senior level ISYS course		
Total Hours		15

Students who desire to earn an Information Systems minor must notify the Walton College Undergraduate Programs Office of intent to pursue a minor. All requirements for the minor must be completed prior to the awarding of the student's undergraduate degree. All specific course prerequisites must be met. Each student must have a 2.00 cumulative grade-point average in the courses offered for the minor.

## Courses

### ISYS 1120. Computer Competency Requirement (Sp, Su, Fa). 0 Hours.

Students entering the Walton College are expected to possess basic competencies in MS Windows, Word, Excel, and PowerPoint. The requirement is expected to be completed in an 8-week session. Deficiencies may be remedied through appropriate self-paced, computer-based instruction and/or alternative courses. Prerequisite: Students must earn a pre-assessment score of 70 or higher and department consent.

### ISYS 1123. Business Application Knowledge - Computer Competency (Sp, Su, Fa). 3 Hours.

An introduction to computer literacy using information business application software; email/Internet; word processing; spreadsheets; presentation; database; collaborative/groupware; and integration of computer applications. Introduces the student to computer Concepts and Microsoft Office (Word, Excel, Windows, and PowerPoint) to manage finances, work with formulas, charts and graphics, and the development of professional worksheets and presentations. Students learn business computing through appropriate self-paced, computer-based instruction. Non-degree credit for business students; may be used to fulfill WCOB 1120 degree requirement if student earns a grade of C or better.

### ISYS 2103. Business Information Systems (Sp, Su, Fa). 3 Hours.

This course presents the fundamentals of business information systems (IS) topics essential to today's business graduate. Applied areas of business will be used to provide the context for the IS topics, business applications, and management challenges. The broad objective of this course is to present students with a business and information systems framework that will allow them to envision how business decisions are enabled and empowered by information systems and technology. Corequisite: WCOB 2053 or ACCT 2023. Prerequisite: ISYS 1120 or ISYS 1123 and WCOB 1033 each with a grade of C or better.

### ISYS 2103H. Honors Business Information Systems (Sp, Su, Fa). 3 Hours.

This course presents the fundamentals of business information systems (IS) topics essential to today's business graduate. Applied areas of business will be used to provide the context for the IS topics, business applications, and management challenges. The broad objective of this course is to present students with a business and information systems framework that will allow them to envision how business decisions are enabled and empowered by information systems and technology. Corequisite: WCOB 2053 or ACCT 2023. Prerequisite: ISYS 1120 or ISYS 1123 with a grade of C or better.

This course is equivalent to ISYS 2103.

### ISYS 2263. Principles of Information Systems (Sp, Fa). 3 Hours.

This course presents the fundamental concepts used in developing information systems. It provides a framework for students to use throughout their software development coursework. Also includes management of information systems concepts. This course requires extensive use of computer systems. Prerequisite: ACCT 2013 or WCOB 1023, and MATH 2053 each with a grade of C or better.

### ISYS 3293. Systems Analysis and Design (Sp, Fa). 3 Hours.

Practice and application of one structured analysis methodology; development of structured analysis specification; exposure to other methodologies; quality assurance and walkthroughs; survey of real systems and their components. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

### ISYS 3393. Business Application Development Fundamentals (Sp). 3 Hours.

Principles of design and development of windows and web applications using cutting edge visual development tools included in Visual Studio. The programming language will be Visual Basic and its use in Windows applications and in conjunction with active server pages and XML for web applications. Pre- or Corequisite: ISYS 3293. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

### ISYS 4003H. Honors Information Systems Colloquium (Fa). 3 Hours.

Explores events, concepts and/or new developments in the field of Computer Information Systems and Quantitative Analysis. Prerequisite: Senior standing.

### ISYS 4193. Business Analytics and Visualization (Fa). 3 Hours.

Introductory study of business analytics, visualization, and systems to provide analytics-based information derived from data within and/or external to the organization. Business analytics used to support management in the decision making. Application of tools in business analytics, problem solving, visualization, and decision making. Prerequisite: WCOB 1033 with a grade of "C" or better.

**ISYS 4213. ERP Fundamentals (Sp, Fa). 3 Hours.**

An introduction to enterprise resource planning systems. Students should gain an understanding of the scope of these integrated systems that reach across organizational boundaries and can change how a company does business. Implementation issues are covered, including the importance of change management. Prerequisite: (WCOB 2023 or ISYS 2103) and (ACCT 2013 with a grade of C or better) or CSCE 2004 each with a grade of C or better.

**ISYS 4223. ERP Configuration and Implementation (Fa). 3 Hours.**

The process of configuring and implementing an enterprise resource planning system. Business process analysis and integration. Students will develop a company and set up several modules in SAP R/3 for use. Develop understanding of how the business processes work and integrate. Prerequisite: WCOB 4213 with a grade of "C" or better.

**ISYS 4233. Seminar in ERP Development (Sp). 3 Hours.**

ERP administration and system development practices. Advanced system support issues related to Enterprise Resource Planning systems that are used in global organizations. Basic ABAP programming. In addition, students will learn how to provide basic systems administration support of the operating system, database, and application systems software levels or ERP systems. Pre- or Corequisite: WCOB 4223 with a grade of "C" or better.

**ISYS 4243. Current Topics in Computer Information (Irregular). 3 Hours.**

Intensive investigation of selected developments in computer information systems hardware, software, and organization having current impact on computer information systems design and application. Offering an extension of lower-level CIS courses through individual student research and faculty team-teaching of advanced topics. Topical selection made with each course offering. Prerequisite: Junior standing. May be repeated for up to 6 hours of degree credit.

**ISYS 4283. Business Database Systems (Fa). 3 Hours.**

Introduces student to centralized information system design and implementation for business applications. In-depth study of logical systems modeling; physical file management; and software requirements. Pre- or Corequisite: ISYS 3393. Prerequisite: ISYS 3293 with a grade of C or better.

**ISYS 4293. Business Intelligence (Sp). 3 Hours.**

Business intelligence focuses on creating, developing and storing information and knowledge from internal and external sources to better support business decisions. We will consider techniques from machine learning, data mining, and information retrieval to extract useful knowledge from data, which could be used for business intelligence, personalization or user profiling. Prerequisite: ISYS 4193 with a grade of "C" or better.

**ISYS 4363. Business Project Development (Sp). 3 Hours.**

Review of fundamentals of application processing systems design and development; implementation of such a system by class. Prerequisite: ISYS 3393 and ISYS 4283 each with a grade of "C" or better.

**ISYS 4373. Application Development with Java (Fa). 3 Hours.**

This course covers object-oriented programming concepts and illustrates them via an appropriate object-oriented programming language. Students will be exposed to the design of software objects, creation of software objects, and the use of objects in constructing an information system. Prerequisite: ISYS 3293 with a grade of C or better.

**ISYS 4393. Seminar in Applied Business Analytics (Sp). 3 Hours.**

Application of business analytics, business intelligence, data mining, and data visualization to business problem solving. Business Analytics techniques using current and relevant software are applied to current business problems for presentation to management. Pre- or Corequisite: ISYS 4293.

**ISYS 4453. Introduction to Enterprise Servers (Fa). 3 Hours.**

The focus of this course is to expose students to working with large scale mainframe computer systems. Mainframe computers are the heart of large company's transaction processing systems. This course provides the opportunity for students to gain valuable insight into computing in a mainframe operating environment. Prerequisite: ISYS 2263 or CSCE 2014 with a grade of "C" or better.

**ISYS 4463. Enterprise Transaction Systems (Sp). 3 Hours.**

Being able to accurately capture and store business transactions is an important processing function in many businesses. For many large companies with high volume processing, the tools of choice for transaction processing are CICS/Cobol/DB2. This course provides students with the necessary understanding and skills to work in this type environment. Prerequisite: ISYS 2263 or CSCE 2014 or ISYS 4453 with a grade of "C" or better.

**ISYS 450V. Independent Study (Sp, Fa). 1-3 Hour.**

Permits students on individual basis to explore selected topics in data processing and/or Quantitative Analysis.