
DIVISION OF BUSINESS AND COMPUTER INFORMATION SYSTEMS

Lois A. Snider, *Chair*

The Department of Business and the Department of Computer Information Systems seek to provide its students with a foundation for success in their chosen vocation.

BUSINESS

Bachelor of Arts Degree: *Majors*— Accounting, Business Administration

Bachelor of Science Degree: *Majors*— Accounting, Business Administration

Minors: Accounting, Business Administration

Nonvocational Business Education Certification: Offers courses leading to certification in non-vocational business education (grades 9-12) in secondary education under the Bachelor of Science in Education degree (see Division of Education for details)

The degrees with a major in business administration allow the student to select an emphasis in one of the following areas: business information systems, finance, general business, management, or marketing.

Statement of Purpose

To equip students with the concepts, skills, and competencies that are fundamental for success in today's business world.

Requirements for BA or BS Degree with Majors in Accounting or in Business Administration

- 1) Complete the campuswide General Education Requirements (and the language requirement if seeking the BA) and the Graduation Requirements (see **Academic Policies** for both).
 - a) Business administration and accounting majors must earn a grade of C or better in MTH 143, 153, or 185 to fulfill the mathematics general education requirement.
 - b) For business administration and accounting majors, ECO 213 (with a grade of C or better) is required to *partially* fulfill the general education's *options* requirement.
- 2) Pass each of the Basic Major Courses with a grade of C or better.

BASIC MAJOR COURSES: 36 hours

ACC 243	Principles of Financial Accounting	ECO 343	Money & Banking <u>or</u>
ACC 273	Managerial Accounting	FIN 343	Money & Banking
BUS 273	Business Statistics	FIN 323	Principles of Finance
BUS 303	Business Communications	MAN 243	Principles of Business Management
BUS 363	Business Law	MKT 313	Principles of Marketing
ECO 223	Principles of Economics II: Micro		

Controlled Electives: To complete the 36 hours of Basic Major Courses, take 6 hours of BIS or CIS courses, 200-level or above.

- 3) Submit an application to the chair of the Business Department during the junior year, requesting acceptance as an accounting or business administration major. Application deadlines are November 1 or April 1. Contact a Business Department adviser for an application form and for information on admission procedures. **NOTE:** To be eligible to submit an application:
- Successfully complete at least 12 hours in residence at HLG before making application.
 - Successfully complete at least 60 hours (which include at least six of the Basic Major Courses) and satisfy the minimum CGPA requirement of 2.25 or above. The six completed Basic Major Courses must include 6 hours of economics, 6 hours of accounting, 3 hours of business software applications, and BUS 333 (Applied Calculus). (*The general business emphasis does not require Applied Calculus.*)
- 4) Select either the major in accounting or the major in business administration, choosing one emphasis. Pass each of the course requirements listed under the major chosen with a grade of C or better.
- 5) Successfully complete Major Field Test in Business.

Major in Accounting: 33 hours

ACC 333	Intermediate Accounting I	ACC 433	Advanced Accounting
ACC 343	Intermediate Accounting II	ACC 453	Government & Not-for-Profit Accounting
ACC 363	Cost Accounting	BIS 353	Business Information Systems
ACC 373	Intermediate Accounting III	BUS 333	Applied Calculus
ACC 403	Tax Accounting I	BUS 499	Business Strategy
ACC 423	Auditing		

Major in Business Administration: Choose from one of the following emphases:

Business Information Systems: 24 hours

BIS 203	Programming for Business	BUS 499	Business Strategy
BIS 313	Database Management for Business	CIS 283	PC Hardware
BIS 353	Business Information Systems	MAN 353	Production/Operations Management <i>or</i>
BIS 373	Network Management & Design *	MAN 323	Organizational Behavior
BUS 333	Applied Calculus		

*CIS 303 (Program Design) *or* CIS 353 (Operating Systems) may be substituted for BIS 373.

Finance: 24 hours

ACC 333	Intermediate Accounting I	BUS 499	Business Strategy
ACC 343	Intermediate Accounting II	FIN 363	International Trade & Finance
BIS 353	Business Information Systems	FIN 443	Principles of Investments
BUS 333	Applied Calculus	FIN 463	Corporate Finance

General Business: 24 hours

BIS 353	Business Information Systems	BUS 499	Business Strategy
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In addition to the above courses (6 hours): To complete the general business emphasis, students are required to take an additional 18 hours of upper-level courses in accounting, business, business information systems, economics, finance, management, or marketing.

Management: 24 hours

BIS 353	Business Information Systems	MAN 353	Production/Operations Management
BUS 333	Applied Calculus	MAN 433	Human Resources Management
BUS 499	Business Strategy	MAN 463	Retail Business Management
MAN 323	Organizational Behavior		

Controlled Elective: To complete the 24 hours, take an additional 3-hour upper-level Business Department course.

Marketing: 24 hours

BIS 353	Business Information Systems	MKT 323	Principles of Advertising
BUS 333	Applied Calculus	MKT 343	Sales Management
BUS 499	Business Strategy	MKT 483	Marketing Research
CAM 453	Public Relations: Strategies & Tactics		

Controlled Elective: To complete the 24 hours, take an additional 3-hour upper-level Business Department course.

Requirements for Minors

A grade of C or better is required in all courses in a minor.

Accounting 18 hours— ACC 243, 273, 333, 343; plus 6 hours of 400-level accounting courses
Business Administration . . . 18 hours— ACC 243; ECO 213; MAN 243; MKT 313; plus 6 hours of 300- and 400-level courses from any area in the Business Department (*This minor is not available to accounting majors.*)

Course Offerings

ACCOUNTING

ACC 243 Principles of Financial Accounting **3 hours**
 Fundamental accounting principles, preparation of financial statements, the interpretation of accounting data, and the role of financial accounting concepts in business decisions. Prerequisite: MTH 143 or consent of instructor. Offered fall and spring semesters.

ACC 273 Managerial Accounting **3 hours**
 Introduction to managerial accounting concepts and fundamentals, emphasizing data creation for decision-making purposes. Student will work with cost behavior, planning, and controlling through budgeting methods, quantitative techniques for decision-making, cost systems, and cost allocation. Prerequisite: ACC 243. Offered fall and spring semesters.

ACC 291-3 Special Topics **1-3 hours**
 Courses offered to meet special needs of students.

ACC 333 Intermediate Accounting I **3 hours**
 A study of current accounting theory, including the environment of financial accounting, the development of accounting standards, the conceptual framework, the required financial statements, and an in-depth study of fair presentation of assets. Prerequisite: ACC 273. Offered fall semester.

ACC 343 Intermediate Accounting II **3 hours**
 A continuation of the study of current accounting theory, including liabilities, capital, dilutive securities, earnings per share, investments, revenue recognition, disclosure, and other advanced topics. Prerequisite: ACC 333. Offered spring semester.

ACC 363 Cost Accounting **3 hours**
 Advanced concepts in cost and managerial accounting. Students will work with quantitative methods of cost estimation and allocation, costing methods, CVP analysis, relevant costing, master budget, and capital budgeting. Includes spreadsheet applications. Prerequisite: ACC 273. Offered fall semester.

ACC 373 Intermediate Accounting III **3 hours**
 A continuation of the study of current accounting theory, including accounting for income taxes, deferred tax, pensions, postretirement benefits, lease accounting, statement of cash flows, and ethical issues in accounting.

Prerequisite: ACC 343. Offered fall semester.

ACC 391-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students.

ACC 403 Tax Accounting I **3 hours**

Course deals with federal tax laws. Primary emphasis on federal tax treatment of business transactions in the preparation of individual tax returns. Prerequisite: ACC 273 or consent of instructor. Offered fall semester.

ACC 411-3 Internship **1-3 hours**

Supervised experience in Accounting. Prerequisites: Senior standing and consent of instructor. Offered as needed.

ACC 423 Auditing **3 hours**

Theory and techniques of auditing, including generally accepted auditing standards, professional ethics, legal liability, internal control, audit evidence and opinions, audit sampling, audit programs, and the working papers. Prerequisite: ACC 343. Offered spring semester.

ACC 433 Advanced Accounting **3 hours**

Advanced study in accounting theory, including accounting issues resulting from business combinations, consolidation accounting, foreign currency denominated statements, hedging, international accounting issues, and the role of the SEC. Prerequisite: ACC 343. Offered spring semester.

ACC 453 Governmental and Not-for-Profit Accounting **3 hours**

Accounting for governmental and nonprofit organizations. Focuses on state and local governments, colleges and universities, healthcare entities, voluntary health and welfare organizations, and on the most recent GASB and FASB standards. Prerequisite: ACC 273. Offered spring semester.

ACC 463 Tax Accounting II **3 hours**

Focuses on federal tax law. Primary emphasis on federal tax treatment of business transactions in the preparation of corporate and partnership tax returns. Introduces taxation of trusts and estates. Prerequisite: ACC 403 or permission of instructor. Offered spring semester upon sufficient demand.

ACC 491-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students. Prerequisite: ACC 273.

BUSINESS INFORMATION SYSTEMS

BIS 102 Keyboarding **2 hours**

Assists students in developing basic composition skills and in formatting basic computer-compatible documents, including personal letters, business letters, memos, envelopes, tables, reports, outlines, and centered materials, such as announcements. Lab fee. Offered as needed.

BIS 201 Web Page Design **1 hour**

Introduces the creation of web pages using HTML (Hypertext Markup Language). Examines document elements, tags, and structures. Presents the philosophy of HTML and good web-page design, including titles, headings, paragraphs, lists, horizontal rules, text appearance and color, special characters, importing images, simple tables, and hyperlinks. Lab fee. Offered fall and spring semesters.

BIS 203 Programming for Business (same as CIS 203) **3 hours**

Emphasis on program coding and data structures. Course includes terminology, flow charting, and pseudocoding. Lab fee. Prerequisite: CIS 103 or consent of instructor. Offered fall semester.

BIS 211 Introduction to Word Processing **1 hour**

Covers basic text entry, editing, revising, and refining, using word processing features. Emphasis on outlines, reports, and tables. Lab fee. Offered fall and spring semesters.

BIS 221 Intermediate Word Processing Applications **1 hour**

A continuation of BIS 211 with emphasis on creating and formatting newsletters and complex tables, and on merging documents. Lab fee. Prerequisite: BIS 211 or consent of instructor. Offered spring semester.

BIS 231 Advanced Word Processing Applications **1 hour**

A continuation of BIS 221 with emphasis on graphics, macros, and more complex merge applications. Lab fee. Prerequisite: BIS 221. Offered upon sufficient demand.

BIS 241 Introduction to Spreadsheets **1 hour**

An introduction to electronic spreadsheets. Focuses on set-up, labels, values, formulas, and cell referencing. Also includes copying, moving, erasing, saving, loading, and editing. Lab fee. Offered fall and spring semesters.

BIS 251 Intermediate Spreadsheet Applications **1 hour**

A continuation of BIS 241. Focuses on spreadsheet enhancements, format and edit commands, building templates, and using functions. Lab fee. Prerequisite: BIS 241 or consent of instructor. Offered spring semester.

BIS 261 Introduction to Presentation Graphics **1 hour**

Concentrates on creating effective graphic presentations, using computer presentation software. Emphasis on creating, editing, enhancing, and refining presentations. Lab fee. Offered fall and spring semesters.

BIS 271 Introduction to Databases **1 hour**

An introduction to electronic databases and database management. Focuses on planning and creating a database; designing and analyzing tables; adding, changing, and deleting information; and creating reports. Lab fee. Offered fall and spring semesters.

BIS 281 Intermediate Database Applications **1 hour**

A continuation of BIS 271. Emphasis on controlling data input, using advanced queries, enforcing referential integrity, and creating custom forms and reports. Lab fee. Prerequisite: BIS 271 or consent of instructor. Offered spring semester.

BIS 291-3 Special Topics **1-3 hours**

Courses offered to meet special needs of students.

BIS 313 Database Management for Business (same as CIS 313) **3 hours**

Database design techniques: data models, structured query language (SQL), and database administration. Lab fee. Prerequisites: BIS 203, 281, or consent of instructor. Offered fall semester.

BIS 353 Business Information Systems **3 hours**

Explores the way information technology is used to support decision-making in organizations. Information, properly managed, should directly support the decision-maker in the attainment of organizational goals and objectives. Offered fall semester.

BIS 373 Network Management and Design (same as CIS 373) **3 hours**

Introduces data communication concepts, hardware, and software; includes both local-area and wide-area networking concepts. Lab fee. Prerequisites: Junior standing and 6 hours of BIS courses. Offered fall semester.

BIS 391-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students.

BIS 411-3 Internship **1-3 hours**

Supervised experience in business information systems. Prerequisites: Senior standing and consent of instructor. Offered as needed.

BIS 491-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students. Prerequisites: Junior standing and consent of instructor.

BUSINESS**BUS 273 Business Statistics (same as MTH 273)** **3 hours**

Collection, analysis, and presentation of business data; includes the study of averages, dispersion, sampling, reliability, index numbers, time series, and simple correlation. Prerequisite: Grade of C or better in MTH 143. Offered fall semester; summer term, odd years.

BUS 291-3 Special Topics	1-3 hours
Courses offered to meet special needs of students.	
BUS 303 Business Communications	3 hours
Focuses on the preparation of business correspondence. A business level of vocabulary and communication skills is stressed. Emphasizes written, oral, and employment communications. Prerequisites: BIS 211, 261, and ENG 106. Lab fee. Offered fall and spring semesters.	
BUS 333 Applied Calculus (same as MTH 333)	3 hours
An intuitive approach to differential and integral calculus with emphasis on application to business. This course will not fulfill requirements for mathematics majors and may not be taken by students who have earned credit for MTH 185. Prerequisite: Grade of C or better in MTH 143. Offered spring semester.	
BUS 363 Business Law	3 hours
An introduction to the legal and social environment of business, focusing on the fundamentals of law pertaining to contracts, the uniform commercial code, negotiable instruments, secured transactions, agency and employment, antitrust, and real property. Prerequisite: Junior standing. Offered fall semester.	
BUS 391 -3 Advanced Topics	1-3 hours
Courses offered to meet special needs of students.	
BUS 411-3 Business Internship	1-3 hours
Supervised experience in business. Prerequisites: Senior standing and consent of instructor. Offered as needed.	
BUS 491-3 Advanced Topics	1-3 hours
Courses offered to meet special needs of students. Prerequisites: Junior standing and consent of instructor.	
BUS 499 Business Strategy	3 hours
A concluding course designed to integrate prior knowledge of accounting, economics, finance, management, and marketing to solve problems and to develop alternative strategies for various types of organizations. Prerequisites: Completion of all Basic Major Courses, senior standing, and acceptance by the Business Department as a major. Offered spring semester.	

ECONOMICS

ECO 213 Principles of Economics I: Macro	3 hours
An introduction to macroeconomics. Emphasis on national income accounting, national income determination, and money and banking economic growth. Offered fall semester.	
ECO 223 Principles of Economics II: Micro	3 hours
An introduction to microeconomics. Emphasis on price determination, distribution of income, and international economics. Prerequisite: ECO 213 recommended, but not required. Offered spring semester.	
ECO 291-3 Special Topics	1-3 hours
Courses offered to meet special needs of students.	
ECO 343 Money and Banking (same as FIN 343)	3 hours
The history and present characteristics of money and banking. Examines financial institutions, central banking, macroeconomic theory, monetary and fiscal policies, and international trade and finance. Prerequisites: ECO 213, 223. Offered fall semester.	
ECO 363 International Trade and Finance (same as FIN 363)	3 hours
The economic relationships among nations and the implications of such relationships for domestic economic activity and policies. Covers international trade theories, balance of payments, protectionism, foreign exchange, and the role of international institutions and international arrangements such as the International Monetary Fund, economic unions, and cartels. Prerequisite: ECO 343. Offered fall semester, odd years.	
ECO 391-3 Advanced Topics	1-3 hours
Courses offered to meet special needs of students.	

ECO 411-3 Internship 1-3 hours
Supervised experience in economics. Prerequisites: Senior standing and consent of instructor. Offered as needed.

ECO 491-3 Advanced Topics 1-3 hours
Courses offered to meet special needs of students. Prerequisites: ECO 213, 223.

FINANCE

FIN 291-3 Special Topics 1-3 hours
Courses offered to meet special needs of students.

FIN 323 Principles of Finance 3 hours
An introduction to business finance. Emphasis on the time value of money, ratio analysis, capital management, and financial planning. Prerequisite: ACC 273. Offered fall and spring semesters.

FIN 343 Money and Banking (same as ECO 343) 3 hours
The history and present characteristics of money and banking. Examines financial institutions, central banking, macroeconomic theory, monetary and fiscal policies, and international trade and finance. Prerequisites: ECO 213, 223. Offered fall semester.

FIN 363 International Trade and Finance (same as ECO 363) 3 hours
The economic relationships among nations and the implications of such relationships for domestic economic activity and policies. Covers international trade theories, balance of payments, protectionism, foreign exchange, and the role of international institutions and international arrangements such as the International Monetary Fund, economic unions, and cartels. Prerequisite: FIN 343. Offered fall semester, odd years.

FIN 391-3 Advanced Topics 1-3 hours
Courses offered to meet special needs of students.

FIN 411-3 Internship 1-3 hours
Supervised experience in finance. Prerequisites: Senior standing and consent of instructor. Offered as needed.

FIN 443 Principles of Investments 3 hours
A study of personal and business investments. Focuses on tools for analyzing and making rational investment decisions. Includes the environment of investing, markets, types of securities, information sources, tax effects and risk. Prerequisite: FIN 323. Offered spring semester, even years.

FIN 463 Corporate Finance 3 hours
Explores financial environment, financial analysis and control, working capital management, capital budgeting, and capital structure decisions. Prerequisite: FIN 323. Offered spring semester, odd years.

FIN 491-3 Advanced Topics 1-3 hours
Courses offered to meet special needs of students. Prerequisites: FIN 323 and junior standing.

MANAGEMENT

MAN 243 Principles of Business Management 3 hours
An introduction to organizational behavior and management principles. Focuses on the processes used to manage effectively with an emphasis on behavioral implications. Examines the functions of planning, organizing, leading, and controlling. Prerequisite: Sophomore standing or consent of instructor. Offered fall semester.

MAN 291-3 Special Topics 1-3 hours
Courses offered to meet special needs of students.

MAN 323 Organizational Behavior 3 hours
Concepts and theories of the behavioral sciences as they apply to theory and practice of management. A study of human behavior in organizational settings; the organization's effect on employee perceptions, feelings, and actions; and the employee's effect on the organization. Emphasis on the attainment of organizational goals

through the effective utilization of people. Prerequisite: MAN 243. Offered fall semester.

MAN 353 Production/Operations Management **3 hours**

Production and operations management with emphasis on resource planning for manufacturing. Includes an overview of manufacturing principles: quality control, capacity planning, and production standards. Prerequisites: BUS 273, MAN 243. Offered spring semester.

MAN 391-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students.

MAN 411-3 Internship **1-3 hours**

Supervised experience in management. Prerequisites: Senior standing and consent of instructor. Offered as needed.

MAN 433 Human Resources Management **3 hours**

The principles used to effectively utilize human resources in organizations. Studies the historical, psychological, legal, and social development of personnel management practices. Analyzes recruitment, selection, development, evaluation, compensation, and union-management relations. Prerequisite: MAN 243. Offered spring semester.

MAN 463 Retail Business Management **3 hours**

Deals with planning, organization, purchasing, pricing, advertising, and budget control. Prerequisite: MAN 243. Offered fall semester.

MAN 491-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students. Prerequisites: MAN 243 and junior standing.

MARKETING

MKT 291-3 Special Topics **1-3 hours**

Courses offered to meet special needs of students.

MKT 313 Principles of Marketing **3 hours**

An introduction to marketing. Using the "4-Ps" — product, place, price, and promotion — as a framework, this course will provide a basic overview of (1) marketing principles and concepts, (2) strategic planning, and (3) the operation of the marketing system. Prerequisite: Sophomore standing; MAN 243 is recommended, but not required. Offered fall and spring semesters.

MKT 323 Principles of Advertising **3 hours**

Advertising background and social implications; the organization of advertising departments and agencies as related to mass media and marketing; creation of advertisements, media planning, and selection; some laboratory work done in conjunction with campus and other media. Prerequisite: MKT 313. Offered fall semester.

MKT 343 Sales Management **3 hours**

The principles and techniques of professional selling. Emphasis on systematic preparation and planning, development of decision skills, interpersonal relationships, and management of the job effort. Prerequisite: MAN 243. Offered spring semester.

MKT 391-3 Advanced Topics **1-3 hours**

Courses offered to meet special needs of students.

MKT 411-3 Internship **1-3 hours**

Supervised experience in marketing. Prerequisites: Senior standing and consent of instructor. Offered as needed.

MKT 483 Marketing Research **3 hours**

Examines marketing research tools, methodology, and functions. Analysis of environmental factors affecting consumer demand. Effectiveness of the marketing program. Effects of competitors' strategies. Prerequisites: BUS 273, FIN 323, MKT 323. Offered spring semester.

MKT 491-3 Advanced Topics

1-3 hours

Courses offered to meet special needs of students. Prerequisites: MKT 313 and junior standing.

COMPUTER INFORMATION SYSTEMS

Bachelor of Science Degree: *Major*—Computer Information Systems

Minor: Computer Information Systems

Statement of Purpose

To equip students with knowledge and competencies in computer information systems and computer technology, and with skills needed to apply this knowledge in the computing industry or in a business environment, thus preparing them for effective careers.

Goals

To enable students to . . .

1. Analyze problematic situations
2. Design solutions for problematic situations
3. Implement designed solutions
4. Administrate implemented solutions
5. Communicate all aspects of their work to peers, supervisors, and supervisees

Requirements for BS Degree with Major in Computer Information Systems

- 1) Complete the campuswide General Education Requirements and the Graduation Requirements (see **Academic Policies** for both).
 - a) A grade of C or better in MTH 143, 153, or 185 is required to fulfill the mathematics general education requirement.
 - b) PHL 253 is preferred to *partially* fulfill the general education option requirement.
 - c) ART 113 is preferred to *partially* fulfill the general education fine arts requirement.
- 2) Pass each course in the major course requirements with a grade of C or better.

Major Course Requirements: 51 hours

CIS 103	Intro to Computers	CIS 353	Operating Systems
CIS 123	Web Design	CIS 373	Networking
CIS 203	Programming Fundamentals	CIS 383	Internal Internship
CIS 283	PC Hardware	CIS 403	Database Administration
CIS 303	Program Design	CIS 413	Computer Architecture
CIS 313	Database Management	CIS 473	Advanced Network Administration
CIS 323	Systems Analysis & Design	CIS 483	External Internship
CIS 333	Web Development	CIS 489	Information Technology Seminar

Controlled Electives: To complete the Major Course Requirements, choose three of the BIS one-hour applications courses— at least one database course is preferred.

Requirements for Minor

A grade of C or better is required in all courses in a minor.

Computer Information Systems . . . 18 hours—CIS 103, 203, 283; plus 3 hours of BIS one-hour applications courses and 6 hours of CIS electives

Course Offerings

For additional choices, see Business Information Systems (BIS) courses under the Business Department, above, especially the one-hour applications courses. The computer graphics courses are located in the Art Department.

CIS 103 Introduction to Computers **3 hours**

An overview of the computer industry, history, and terminology, with emphasis on the four major areas of the personal computer: input, output, storage, and processing. Includes an introduction to current software. Lab fee. Offered fall semester.

CIS 123 Web Design **3 hours**

Emphasizes website architecture, layout structure, template development, documentation, and form development. Uses style sheets to organize and present page content. Focuses on client-side scripting. Lab fee. Prerequisite: CIS 103 or consent of instructor. Offered spring semester.

CIS 203 Programming Fundamentals (same as BIS 203) **3 hours**

Emphasis on program coding and data structures. Course includes terminology, flow charting, and pseudocoding. Lab fee. Prerequisite: CIS 103 or consent of instructor. Offered fall semester.

CIS 283 PC Hardware **3 hours**

Hands-on assembly and troubleshooting of computers. Includes research of current topics. Lab fee. Prerequisite: CIS 103 or consent of instructor. Offered fall semester.

CIS 291-3 Special Topics **1-3 hours**

A course to meet special needs of students. Prerequisite: Consent of instructor.

CIS 303 Program Design **3 hours**

Examines systems design, concepts, and techniques for the development of computer programs. Lab fee. Prerequisite: CIS 203. Offered spring semester.

CIS 313 Database Management (same as BIS 313) **3 hours**

Database design techniques: data models, structured query language (SQL), and database administration. Lab fee. Prerequisites: BIS 281 and CIS 203. Offered fall semester.

CIS 316 Visual Basic **3 hours**

Introduces the development of computer applications using Visual Basic; emphasis on designing and managing graphical-user interfaces, procedures, file management, debugging, and testing. Lab fee. Prerequisite: CIS 303.

CIS 323 Systems Analysis and Design **3 hours**

The proper methods and techniques for analyzing and designing systems to meet various business needs. Lab fee. Prerequisite: CIS 353 or consent of instructor. Offered fall semester, even years.

CIS 326 Programming in C++ **3 hours**

Programming problems and methods using the C programming language with its I-O functions, array handling, pointers, and structure data types. Lab fee. Prerequisite: CIS 303.

CIS 333 Web Development **3 hours**

Integrates skills learned in previous courses and presents dynamic web programming using server-side programming techniques such as PHP and ASP. Focuses on the integration of databases into a web site. Lab fee. Prerequisites: CIS 123, 203, 313, or consent of instructor. Offered spring semester, odd years.

CIS 353 Operating Systems	3 hours
Concepts and design of operating systems with the appropriate commands, utilities, and system calls to manipulate those operating systems. Prerequisite: CIS 283. Offered spring semester.	
CIS 356 COBOL Programming	3 hours
Programming problems and methods using the COBOL programming language. Lab fee. Prerequisite: CIS 303.	
CIS 366 Java	3 hours
Programming problems and methods using the Java programming language. Lab fee. Prerequisite: CIS 303.	
CIS 373 Networking (same as BIS 373)	3 hours
Introduces data communication concepts, hardware, and software; includes both local-area and wide-area networking concepts. Lab fee. Prerequisite: CIS 283. Offered fall semester.	
CIS 383 Internal Internship	3 hours
The student will design solutions to an on-campus computer-related project. Upon the project's completion, the student will be required to present a summation to a panel of knowledgeable persons. Requires 120 hours of work. Prerequisite: Junior standing. Offered fall and spring semesters.	
CIS 391-3 Advanced Topics	1-3 hours
A course to meet special needs of students. Prerequisite: Consent of instructor.	
CIS 403 Database Administration	3 hours
Examines the database administrator's responsibilities: monitoring and tuning of the database and its reliability and security in a client/server environment. Lab fee. Prerequisite: CIS 313. Offered spring semester, even years.	
CIS 413 Computer Architecture	3 hours
Introduces the functional organization, sequential operation, machine-instruction architectures, and assembly language of the digital computer. Examines the internal computer operations during program executions. Prerequisite: CIS 353. Offered fall semester, odd years.	
CIS 473 Advanced Network Administration	3 hours
An in-depth continuation of CIS 373. Lab fee. Prerequisite: CIS 373. Offered fall semester.	
CIS 483 External Internship	3 hours
The student will interview with prospective companies to find a work setting in the computer field to be approved by the CIS Department. Requires 120 hours of work. Prerequisites: CIS 383 and senior standing. Offered spring semester.	
CIS 489 Information Technology Seminar	3 hours
A senior capstone course including current topics to intensify and supplement the study of technology management. Prerequisite: Senior standing. Offered spring semester.	
CIS 491-3 Advanced Topics	1-3 hours
A course to meet special needs of students. Prerequisite: Consent of instructor.	