CSIS - Computer Information Systems | Undergrad

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Global Citizenship Program Knowledge Areas
(bolded code)

- **ARTS**: Arts Appreciation
- **GLBL**: Global Understanding
- **PNW**: Physical & Natural World
- **QL**: Quantitative Literacy
- **ROC**: Roots of Cultures
- **SSHB**: Social Systems & Human Behavior

Global Citizenship Program Skill Areas
(not bolded code)

- CRI: Critical Thinking
- ETH: Ethical Reasoning
- INTC: Intercultural Competence
- OCOM: Oral Communication
- WCOM: Written Communication
- ** Course fulfills two skill areas

Course Descriptions

CSIS 1500 Introduction to Business Technologies (3)

Business organizations operate in competitive environments and constantly redefine their business strategies to create competitive advantages. Information technology plays an important role in daily business activities by supporting and implementing enterprise-wide initiatives and global business strategies. This course will provide a broad overview of the close correlation between business and technology. The course will explore various information technologies and how they fit into business operations as a key enabler to help business success.

CSIS 1700 Data Exploration (3)

Data is the foundation for business decision making in this information age. Students in this class explore data from various perspectives and learn how it can be used in business context. Using spreadsheet as a tool, students gain basic understanding on data organization, manipulation and presentation.

CSIS 2300 Electronic Commerce (3)

More and more business is conducted over the internet. Electronic commerce (e-commerce) is expanding across the globe. The course provides students with opportunities to gain an understanding of electronic commerce with its major driving forces in information technology. The study covers features of electronic commerce, technology foundations, business strategies and electronic commerce environment. **Prerequisite**: CSIS 1500.

CSIS 2500 Introduction to Data Science (3)

This course serves as an introduction to data science, which incorporates theories and techniques from many areas, such as statistics and data mining, to extract valuable knowledge from data. The course provides an overview of fundamental principles about how data science can provide solutions to business problems, techniques for extracting meaning from data and general approaches of data analytical thinking.

CSIS 2700 Data Privacy, Security and Ethics (3)

There is a subtle balance between improvements in business operations by using big data analytics and increased risk if (inadvertently) overstepping certain legal or social boundaries. This course addresses the pros and cons of using data analytics in business and social, ethical and security issues associated with it. Several real-world cases will be discussed and analyzed in the course. **Prerequisite**: CSIS 2500.

CSIS 2800 Data Visualization Fundamentals (3)

In this course, students will learn how to choose the best visualization for the required information, and how to interpret common visualization such as histograms, scatter plots, line plots, boxplots and bar plots. Student will also learn about best practices for using colors and shapes in their plots, and how to avoid common pitfalls. Through hands-on exercises, students visually explore over given datasets using popular data visualization applications. **Prerequisite**: Sophomore standing.

CSIS 3300 R Programming for Data Analytics (3)

R is a programming language used for data analytics and visualization. R offers powerful data analytic techniques that can be used to tackle challenges in data processing, data management and presentation. This course will provide students with fundamentals of the language and how to apply it effectively to various data analytics tasks. **Prerequisites**: CSIS 2500 and junior standing.

CSIS 3410 Information Analysis (3)

This course presents an introduction into the concepts of data analysis, the role of a Data Analyst, and the mathematical, statistical, and spreadsheet tools that are used to perform data analysis functions. Students will gain an understanding of the data ecosystem and the fundamentals of data analysis, such as the data transformation through pivoting, and/or modeling. They will then learn the basic skills that are required to effectively communicate their data analysis outcome through tubular and graphical visualizations. **Prerequisites**: STAT 1100 or MATH 2200, CSIS 1700 and junior standing.

CSIS 3700 Data Analytics Methods (3)

Data analytics is the science of examining raw data with the purpose of drawing conclusions about that data. Data analytics is used in many industries to allow companies and organizations to make better business decisions and in the sciences to verify or disprove existing models or theories. Data analytics focuses on inference; the process of deriving a conclusion based solely on what is already known by the researcher. This course will introduce students to many techniques used in data analytics. **Prerequisites**: CSIS 3300.

CSIS 3800 Machine Learning (3)

This course will provide a background and benefits of Machine Learning to data science-related tasks. The fundamental concepts and algorithms in machine learning will be introduced, as well as effective ways of applying machine learning to a variety of subject areas. Topics covered in this course include Supervised Learning, Unsupervised Learning, Linear Regression, Clustering, Bayesian

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Learning, Decision Trees and Neural Networks. **Prerequisite**: COSC 1800, MATH 3160, MATH 3610.

CSIS 3810 Management Information Systems (3)

This course covers the organizational foundations of systems, their strategic role and the organizational and management changes driving electronic commerce, electronic business and digital firms. The course also covers technical foundations of information systems and the roles of information systems in capturing and enhancing management decision making across the enterprise. **Prerequisite**: Junior standing.

CSIS 4300 Database Systems (3)

This course will provide a foundation for understanding database technology by examining the way databases are used, designed and managed. The course will introduce fundamental concepts related to databases with an emphasis on the relational model. The course will cover the principles of designing databases and provide students with introductory experience in developing and using database applications. Management of databases in the workplace and the responsibilities of database administrators will be covered. This course uses a database management system (DBMS) for hands-on activities. **Prerequisite**: Junior standing.

CSIS 4310 Decision Support Systems (3)

This course will teach fundamental concepts of information as well as decision support systems. The course will study management support systems' terminologies, decision-making process, problem modeling for analysis and solution design, data management, access, visualizations and constructing simple decision support systems. The course will briefly discuss business intelligence and the role of networks in implementing and using decision support systems. **Prerequisite**: Junior standing.

CSIS 4320 Data Warehousing (3)

This course will provide a foundation to understand data warehouse technology by examining the way they are designed, managed, and used. The course will explore the fundamental concepts related to data warehouses. Some of the topics of interest that are covered in this course are the business justification of a data warehouse, management of a data warehouse project, the design, construction and operation of a data warehouse, issues of data quality and performance, and using the data warehouse. **Prerequisite**: CSIS 4300.

CSIS 4330 Machine Learning for Data Analytics (3)

This course will provide a foundation to understand machine learning algorithms and methods by examining how these technologies provide useful knowledge that supports critical business decisions. This course will introduce machine learning concepts and have students experiment with machine learning applications. **Prerequisite**: CSIS 3700.

CSIS 4500 Data Science Capstone (3)

This capstone course will allow students to create a usable data science solution that can be used to show their skills to potential employers. Projects will be drawn from real-world problems, focused on problem outcome, and will be conducted with business, government, and academic context. Students will apply what they learned in mathematics, statistics, analytics, and computer science to build an efficient data analysis and accurate association, prediction, classification or forecasting model. Conduct model evaluation and selection, and produce an analytics story to show their findings. **Prerequisite**: Department Approval.