

# INFORMATION SYSTEMS

## Lam Family College of Business

Dean: Dr. Eugene Sivadas

### Department of Information Systems

BUS 310

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Chair: Dr. Sameer Verma

Undergraduate Advisors: Beckman, Chao, Jin, Mak, Shahrasbi, Verma

### Professor

Paul Beckman (1996), *Professor in Information Systems*. Ph.D. Purdue University.

David D. Chao (1990), *Professor in Information Systems*. Ph.D. University of Washington.

Lutfus Sayeed (1996), *Professor in Information Systems*. Ph.D. Georgia State University.

Sameer Verma (1991), *Professor in Information Systems*. Ph.D. Georgia State University.

### Associate Professor

Leigh Jin (2001), *Associate Professor in Information Systems*. Ph.D. Georgia State University.

Lik Mui (2003), *Associate Professor in Information Systems*. Ph.D. Massachusetts Institute of Technology.

Nasser Shahrasbi (2022), *Associate Professor in Information Systems*. Ph.D. HEC Montréal.

### Assistant Professor

Tai-Yin Chi (2018), *Assistant Professor in Information Systems*. Ph.D. Claremont Graduate University.

Guillaume Faddoul (2018), *Assistant Professor in Information Systems*. Ph.D. Claremont Graduate University.

Matthew Levy (2013), *Assistant Professor in Information Systems*. Ph.D. Louisiana State University.

### Major

- Bachelor of Science in Business Administration: Concentration in Information Systems (<http://bulletin.sfsu.edu/colleges/business/information-systems/bs-business-administration-concentration-information-systems/>)

### Minor

- Minor in Information Systems (<http://bulletin.sfsu.edu/colleges/business/information-systems/minor-information-systems/>)

### Certificate

- Certificate in Information Technology Auditing (<http://bulletin.sfsu.edu/colleges/business/information-systems/certificate-information-technology-auditing/>)

- Certificate in Cybersecurity Management (<http://bulletin.sfsu.edu/colleges/business/information-systems/certificate-cybersecurity-management/>)

### Graduate Certificate

- Graduate Certificate in Enterprise Cybersecurity (<http://bulletin.sfsu.edu/colleges/business/information-systems/gct-enterprise-cybersecurity/>)
- Graduate Certificate in Enterprise Information Systems (<http://bulletin.sfsu.edu/colleges/business/information-systems/certificate-enterprise-information-systems/>)

#### ISYS 198 Information Systems Spreadsheet Make-Up (Unit: 1)

Prerequisite: Permission of the instructor.

Additional study to make up the spreadsheet component of otherwise equivalent courses in order to receive full credit. (CR/NC grading only)

#### ISYS 263 Introduction to Information Systems (Units: 3)

Prerequisite: GE Area B4\*.

Application of information systems (IS) in a business environment. Topics include information technology (IT), networks and internetworks, types of information systems and their development, problem-solving using end-user tools, and social impact of IT.

#### ISYS 350 Building Business Applications (Units: 3)

Prerequisite: ISYS 263 with a grade of C- or better.

Development of a multi-tier e-business application using high-level tools. Design and implement a business rule tier, presentation tier, and data access tier in order to rapidly deliver innovative and extensible business solutions. Mini-projects culminate in a complete solution for an e-business application.

#### ISYS 363 Information Systems for Management (Units: 3)

Prerequisites: ISYS 263\* and ACCT 100\* with grades of C- or better; or Statistics majors\* with MATH 338\*.

Information systems for management decision-making. Information system development from the end-user's perspective. Applications software used to develop solutions to business problems. Extra fee required.

#### ISYS 412 Application Development for Data Analytics (Units: 3)

Prerequisites: Restricted to upper-division standing; ISYS 350\* and ISYS 363\* with grades of C- or better.

Development of business applications with an emphasis for data analytics. Application development tools and analytics libraries. Selection of tools and libraries will vary based on instructor preference.

#### ISYS 463 Information Systems Analysis and Design (Units: 3)

Prerequisites: ISYS 350\* and ISYS 363\* with grades of C- or better; or Statistics majors\* with ISYS 363\* and MATH 338\*.

Analysis and design of computer-based information systems.

#### ISYS 464 Managing Enterprise Data (Units: 3)

Prerequisites: ISYS 363 and ISYS 350 with grades of C- or better.

Principles and use of database management systems in business. Database design and implementation. Database definition, manipulation, and control using SQL. (Plus-minus letter grade only)

**ISYS 475 Building Web Applications with Open Source Software (Units: 3)**

Prerequisites: ISYS 363 and ISYS 350 with grades of C- or better.

Concepts, techniques, and tools to develop Internet-oriented business application systems with emphasis on the web.

**ISYS 512 Business Application Design and Development with .NET (Units: 3)**

Prerequisites: ISYS 350 and ISYS 363 with grades of C- or better.

Theory and practice of distributed business application design and development. Architecture and components of a business application system, how to design and develop a business application, and how to develop the web-based components of a business application. (Plus-minus letter grade only)

**ISYS 556 Building Mobile Business Applications (Units: 3)**

Prerequisites: Restricted to upper-division standing; ISYS 350 or one semester of programming with a grade of C- or better.

Design and develop applications for mobile devices including tablet computers and smartphones. Building successful business applications for mobile devices that interfaces with the backend system.

**ISYS 565 Managing Enterprise Networks (Units: 3)**

Prerequisite: ISYS 363 with a grade of C- or better.

Hardware and software for communications and their application to the distributed data processing environment. Terminal-to-host communication, local and wide area networks, transaction processing monitors.

**ISYS 567 Information Systems Internship (Units: 3)**

Prerequisites: ISYS 363; completed an application form; a minimum GPA of 3.0 in ISYS courses; permission of the instructor.

Provides Information Systems majors the opportunity to participate in a field experience in their chosen concentration. Major report required.

**ISYS 568 Multimedia Business Applications Development (Units: 3)**

Prerequisite: ISYS 363 with a grade of C- or better.

Methodology and tools for the development of multimedia business applications.

**ISYS 569 Information Systems for Business Process Management (Units: 3)**

Prerequisite: ISYS 363 with a grade of C- or better.

Design of information systems that closely aligned with business processes; business modeling languages and techniques; real world applications. (Plus-minus letter grade only)

**ISYS 573 New Advances in IT in Organizations (Units: 3)**

Prerequisites: ISYS 350\*; ISYS 363\* or ACCT 307\*, with grades of C- or better.

The rapid adoption of innovative Information Technology (IT) architectures and tools. Topics to be specified in the Class Schedule. May be repeated for a total of six units as topics vary. [CSL may be available]

**Topics:**

- a. Managing Open Source
- b. Building Mobile Business Applications
- c. Machine Learning for Business

**ISYS 574 Artificial Intelligence (AI)/Machine Learning (ML) for Business Applications (Units: 3)**

Prerequisites: ISYS 350\* and ISYS 363\* with grades of C- or better.

In-depth study of AI/ML techniques and their application to solving business problems. Machine learning has been essential to the success of many recent applications, including autonomous vehicles, search engines, genomics, automated medical diagnosis, image recognition, and social network analysis, among many others.

**ISYS 575 Information Security Management (Units: 3)**

Prerequisites: ISYS 363 and ISYS 565 with a grade of C- or better.

Information security from a management perspective. Identification of organization's information assets, threats to these assets, information security strategy to protect assets.

**ISYS 650 Business Intelligence (Units: 3)**

Prerequisite: ISYS 363.

Analysis and design of business intelligence systems that are aligned with business processes. Identification and use of business data, (re)design of information and knowledge systems, business modeling methodology. (Plus-minus letter grade only)

**ISYS 663 Information Technology Project Management (Units: 3)**

Prerequisite: ISYS 350 or ISYS 363 with a grade of C- or better.

Managing information technology projects including both technical and behavioral aspects, Managing IT project scope, cost, time, quality, risk, human resources, communications, procurement, and outsourced IT projects. Senior IT management role.

**ISYS 699 Independent Study (Units: 1-3)**

Prerequisite: Permission of the instructor, adviser, and department chair.

Intensive problem analysis under the direction of a business computer information systems faculty member. Open only to upper-division students who have demonstrated the ability to do independent work.

**ISYS 782 Information Systems for Management (Units: 3)**

Prerequisite: Restricted to graduate Business students; graduate students in other programs permitted with the permission of the Faculty Director of Graduate Programs.

Information systems and their use in business management. Information technology for managers, the role of different types of information systems in businesses, common information systems, problem-solving, and application development. (Plus-minus letter grade only) [Formerly BUS 782]

**ISYS 812 Programming and Applications for Data Analytics (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 782 or one-semester of programming. Graduate students in other programs admitted with the permission of the Faculty Director of Graduate Programs.

Fundamental programming, data processing, and business application development with an emphasis on data analytics. Application development tools and analytics libraries. Selection of tools and libraries will vary based on instructor preference. (Plus-minus letter grade only)

**ISYS 814 Information Systems for Strategic Advantage (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 782; Graduate students in other programs admitted with the permission of the Faculty Director of Graduate Programs.

In-depth treatment of three topics: derivation of an Information Systems (IS) strategy, specification of information system requirements, and design and implementation of an information-based solution. (Plus-minus letter grade only)

**ISYS 850 Seminar in Business Intelligence (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 782; graduate students in other programs admitted with the permission of the Faculty Director of Graduate Programs.

Tools and techniques for extracting business intelligence from data to support strategic decision-making. Applications of business intelligence and analytics methodologies in different functional areas. Managerial implications. (Plus-minus letter grade only)

**ISYS 856 Enterprise Mobile Applications (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 782; graduate students in other programs admitted with the permission of the Faculty Director of Graduate Programs.

Focus on mobile enterprise technologies in the workplace that enable new business models to connect customers and enterprises; Design Thinking methodology to facilitate the creative design of enterprise mobile strategy and solutions; employment of Enterprise Resource Planning (ERP) mobile development platform to help prototype and develop innovative mobile solutions. Activity. (Plus-minus letter grade only)

**ISYS 864 Data Management for Analytics (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 812 or equivalent; graduate students in other programs permitted with the permission of the Faculty Director of Graduate Programs.

Fundamentals of database management in the context of business analytics processing with an introduction to the principles, design, security, and use of database management systems in business with an emphasis on Big Data Management. (Plus-minus letter grade only)

**ISYS 865 Managing Enterprise Networks (Units: 3)**

Prerequisite: ISYS 782.

Selection and management of distributed data processing systems and concurrent communication networks. Distributed databases, computer system network applications, communication systems and protocols, transaction processing monitors. Distributed vs. centralized data processing cost/benefit analysis.

**ISYS 869 Business Process Management (Units: 3)**

Prerequisites: Restricted to graduate Business students; ISYS 782. Graduate students in other programs admitted with the permission of the Faculty Director of Graduate Programs.

Design of business processes and their implementation through change management. Modeling and analysis of business processes. (Re)design and implementation of systems that enable them. Business modeling languages and techniques. (Plus-minus letter grade only)

**ISYS 875 Enterprise Cyber Security Management (Units: 3)**

Prerequisite: ISYS 782.

Foundation for understanding the critical issues associated with protecting information assets, determining the levels of protection and response to cybersecurity incidents, and designing consistent, reasonable information security systems with appropriate intrusion detection and reporting features. Overview of the field of cybersecurity and assurance. Exposure to the spectrum of cybersecurity activities, methods, methodologies, and procedures. Explore data and network attack vectors, spyware, network defense, cybersecurity appliances, social engineering, and cryptographic communication platforms. Reflects new industry trends.

**ISYS 895 Research Project in Information Systems (Units: 3)**

Prerequisites: ISYS 814 and three 800-level required courses in the chosen emphasis. Open only to computer information systems and electronic commerce MSBA candidates; permission of the instructor and approval of Advancement to Candidacy (ATC) and Culminating Experience (CE) forms by Graduate Studies.

Research methodology and supervised research culminating in oral and written presentations. Advancement to Candidacy and Proposal for Culminating Experience Requirement forms must be approved by Graduate Studies before registration. (Plus-minus letter grade; no CR/NC allowed; RP)

**ISYS 899 Independent Study (Units: 1-3)**

Prerequisites: Restricted to graduate Business students; permission of the instructor, adviser, and department chair; open only to graduate students who demonstrate the ability to work independently.

Intensive study of a particular problem under the direction of an Information Systems faculty member. (Plus-minus letter grade only)