The Post-MSQE Certificate in Financial Economics and Risk Management

Today's business environment is heavily reliant on professionals who are both business professionals and technically astute. California Lutheran University's Master of Science in Information Systems and Technology (MS-IST), offered by the School of Management, combines the technical foundation of information systems with key business concepts. The integrated coursework enables students to obtain the business, technical and leadership skills necessary to meet the challenges of today's global marketplace.

If you want to expand and deepen your technical skills, add to your business knowledge, prepare for systems analysis and project management roles, this degree is for you. As an MS-IST graduate, you will be prepared for a number of positions in the IT field including senior systems analyst, applications development manager, data center manager, technical services director, software engineer, database administrator, database engineer, and computer scientist. Other management-oriented roles include project manager, program manager, and line management roles in technical organizations.

Goals of the Program

MS-IST students will be involved with the common body of knowledge characteristic of all elements of technology leadership including the following:

1. The ability to solve problems, based on a knowledge of tools, concepts, and theories of information systems and other business disciplines;
2. The ability to transcend functional boundaries, particularly between technical and non-technical organizational functions, synthesizing and integrating information to make complex, short-term decisions with limited information, as well as conduct the research, competitive analysis, and environmental scanning necessary for long-term strategic decisions;
3. The ability to apply specialized skills to business and technical problems inherent in a rapidly changing global environment;
4. The ability to effectively harness and use information technology;
5. Effective written, oral and presentation skills;
6. The interpersonal and team leadership skills needed to build an organizational environment that is effective and conducive to collaboration;
7. A sense of professional and social responsibility in the conduct of technology management.

Academic Calendar

Master of Science in Information Systems and Technology courses are offered year round in four 11-week terms: Fall, Winter, Spring and Summer. Classes are scheduled in the evening once a week to accommodate adult learners who are employed full time and pursuing course work on a part-time basis. Occasionally, a class will be offered in a compressed weekend format or as an International travel course. Based on admission requirements, time to complete the program can take between one and seven years. Students must complete the program within seven years after their first registration.

Admission Requirements

International applicants are subject to separate admission procedures. For current admission procedures, international applicants should consult the following: www.callutheran.edu/management.

Candidates for admission to the MS-IST program should submit a complete application portfolio at least 45 days prior to the start of the term. Admission decisions for regular graduate standing are based on a review of the following materials in the candidate's file:

1. A completed application form and non-refundable application fee;
2. Evidence of an interview with an admission counselor;
3. Official transcripts showing a bachelor's degree from a regionally accredited U.S. institution. Normally, a grade point average of 3.0 or higher in upper division undergraduate work is expected;
4. Two letters of recommendation;
5. A personal statement;
6. Test scores. Applicants whose undergraduate records do not satisfy the criteria set forth in paragraphs A-D below must include Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores in their admission portfolio. The GMAT may be waived for candidates who present an official transcript of previous college work from a regionally accredited college or university reflecting any one of the following criteria:
    a. An undergraduate, upper division grade point average of 3.0 or higher on a 4.0 scale; or
    b. A combined grade point average of 3.0 or higher for the most recent 60 credits of study consisting of any of the following: graduate course work, upper division postbaccalaureate course work (exclusive of extension or continuing education work), and upper division undergraduate course work; or

c. A minimum of nine credits of graduate course work completed and a 3.50 grade point average; or
d. A previously earned master's degree.

Admission to the MS-IST program requires at least one year of work experience and one of the following:

- A prior technical bachelor's degree and one year of hands-on programming coursework or work experience; OR
- A prior non-technical bachelor's degree and three years of technical work experience, including one year of hands-on programming coursework or experience.

Note: All applicants who have completed their undergraduate work at other than a regionally accredited U.S. institution must submit GMAT scores.

Admission Counseling

Prior to enrollment in graduate classes, the applicant must make an appointment for an advisement interview with an admission counselor. This exploratory interview will clarify individual program requirements and provide the opportunity to answer students' questions. Counselors are available by appointment.

Provisional Admission

Under some conditions, after meeting with an admission counselor and with the approval of the Program Director, a student may register for classes before completing the entire admission process. However, the Application for Admission, the $50 application fee, and a copy of a transcript showing a bachelor's degree with an acceptable GPA and/or acceptable standardized test score must be on file in the Graduate and Adult Programs Office before the class registration can be accepted. Students are expected to complete all admission requirements in the first term of their program or they will not be permitted to enroll in subsequent terms. Provisionally admitted students are not eligible for financial aid.

International Students

International applicants are subject to separate admission procedures. For current admission procedures, international applicants should consult the following: www.callutheran.edu/management

Requirements for the Master of Science in Information Systems and Technology

The curriculum includes a total of 12 graduate courses (36 credits), based on the Association for Information Systems' Model Curriculum. All courses are offered in 11-week terms. Three foundation courses are required, along with six core courses.

Required Courses

Fundamentals Courses (9 Credits)		
BUS 567	Behavioral Sciences for Management	3
BUS 581	Management Concepts for Information Technology	3
IST 586	Information Systems and Business Strategy	3
Core Requirements (12 Credits)		
Select four of the following IST core courses:		12
IST 503	Project and Change Management	
IST 532	Distributed Systems and Applications	
IST 534	Data Management	
IST 535	Information Security Management	
IST 570	Emerging Technologies and Issues	
IST 583	Business Systems Development	
IST 584	Data Communication and Networking	
Program Electives (6 Credits)		
Select two additional non-technical courses from across the MBA and MPPA program offerings, with concurrence from the Program Director		6
Electives (9 Credits)		
Select three of the following:		9
IST 501	Healthcare Informatics	
IST 502	Information Technology Infrastructure	
IST 530	Digital Society and Ethics	
IST 536	Fundamentals of Web Development	
IST 539	Global Information Technology	
IST 548	SAP for Managers	
IST 587	Management Concepts for E-Business	

IST 599	Integrated Project	
Other IST course offerings		
Graduate IT courses [1]		
Total Hours		36

[1] Graduate IT courses from the School of Business or graduate courses in Computer Science.

Courses

ECON 500. Operations Research. (3).
Operations Research will focus on linear programming and game theory. The theory behind linear programming will be revealed and a large variety of practical examples will be presented. Students will use the technique to solve practical problems on their own using computers at labs on campus. We will generalize the method to include non-linear programming, again with practical examples. Then we will study game theory. Game theory is one of the primary tools economists use to study strategic choices. One of many examples is pricing and entry behavior in oligopolistic markets. Finally we will relate game theory with linear programming as it is the case that certain types of games can be solved using linear programming. This is a tools class and no project will be required. Students will have extensive problem sets.

ECON 510. Econometrics 1. (3).
The first econometrics course will provide a thorough review of the classical regression model. Some instruction will occur in the computer lab, where students will be instructed how to run regressions using actual data. Problem sets and a practical regression-based project will be assigned to each student.

ECON 511. Econometrics 2. (3).
This class will build on the classical regression model. Students will learn cross-sectional and panel techniques. The use of instrumental and dummy variables will be discussed. Problem sets and a practical regression-based group project will be required.

ECON 512. Econometrics 3. (3).
The third econometrics course will emphasize time-series methods. We will begin with the serial correlation violation of the classical model. Then we will turn our attention to univariate and multivariate times-series econometrics. Students will spend time in the computer lab where they will apply the techniques they learn to the data. They will complete problem sets and complete a project using time-series econometric methods.

ECON 513. Economic Modeling. (3).
The modeling class will be a very practical hands-on class where the end goal is familiarity with constructing models of economic activity. This course will take place in the computer lab. We start with study of important data distinctions. Students will have access to the Center for Economic Research and Forecasting (CERF) database system. Forecast theory will be studied, including concepts such as model specification and forecast errors. Study of the modeling environment will include the model object, model structure, and practical forecasting considerations. Students will be assigned problem sets and a modeling project.

ECON 520. Microeconomic Theory - Part 1. (3).
This course introduces students to microeconomics, the study of allocating limited resources. The theories economists use to describe economic behavior will be extensively studied. The class will have two sections: Consumer Theory and Production Theory. Because microeconomics is a math intensive course students will be expected to know calculus. This is a tools class and no project will be required. Students will have extensive problem sets.

ECON 521. Microeconomic Theory - Part 2. (3).
This course is a continuation of microeconomics I. The purpose of the course is to combine consumer and producer theory into a general equilibrium framework. This course will study theories that analyze consumers and producers in a market economy.

ECON 530. Macroeconomic Theory - Part 1. (3).
This course will establish the core macroeconomic theoretical foundation for the program. It will include study of the traditional static Keynesian model. The remainder of the course will be spent on the infinite horizon representative agent model. Using this model, we will study fiscal policy. Policy implications for the various models will be a key part of the course. Class participation, problem sets, and a project will be required. Prerequisite: ECON 521.

ECON 531. Macroeconomic Theory - Part 2. (3).
This class continues the macroeconomic theory curriculum that was begun in Economics 530. The course will study monetary theory and policy, and current policy topics. The monetary theory and policy portion of the course will consist of the study of: money supply, money demand, interest rate theories, the costs and benefits of sound money policies, the theory of monetary policy, transmission mechanisms, and monetary policy strategies. Then the course will delve into current economic policy topics, where the topic may change over time. Students will be expected to participate in class discussions. The course will include a project.

ECON 542. Operations Research. (3).
Operations Research will focus on linear programming and game theory. The theory behind linear programming will be revealed and a large variety of practical examples will be presented. Students will use the technique to solve practical problems on their own using computers at labs on campus. We will generalize the method to include non-linear programming, again with practical examples. Then we will study game theory. Game theory is one of the primary tools economists use to study strategic choices. One of many examples is pricing and entry behavior in oligopolistic markets. Finally, we will relate game theory with linear programming as it is the case that certain types of games can be solved using linear programming. This is a tools class and no project will be required. Students will have extensive problem sets.

ECON 543. Financial Economics - Part I. (3).
This course is an introduction to and study of the theory and practice of financial economics and financial engineering. Topics include an overview of financial markets and instruments, mechanics of derivative contracts, fundamentals of interest rates and discounting, principles of valuation, and applications to hedging and risk management.

ECON 544. Financial Economics - Part II. (3).
This course is the second course on financial economics. Topics include the theory of derivatives valuation, numerical techniques used to value derivatives and implement hedging programs, interest rate modeling, market risk management, and Value at Risk.

ECON 545. Financial Economics - Part III. (3).
This course is the third course on financial economics. Topics include credit risk managment, risk management at financial institutions, bank capital requirements, and applications and opportunities for financial engineers. Students will be expected to design and implement a risk management program or financial engineering application.

ECON 555. Economics and Environmental Policy. (3).
The goal of this course is to provide extension and empirical application of microeconomic and econometric theories already studied in the MSQE program. The class will focus on the theory of public bads/externalities, regulation theory and empirical analysis in the context of environmental problems. We will examine when markets maximize net benefits to society and under what conditions they fail to do so. Market failures that we will discuss include public goods, externalities, and common pool problems. We will study non-market valuation of environmental goods and a few important econometric tools that are used to conduct policy analysis. The last part of the class will focus on the design of environmental policies to improve the performance markets. In addition to completing problem sets and 2 exams, each student will be responsible for 3-4 policy briefs, each of which involves writing and presenting economic analysis of specific environmental policies. Prerequisites: ECON-520 and ECON-521.

ECON 590. Independent Study. (1-4).