

DEPARTMENT OF COMPUTER SCIENCE

Dr. Jing-Chiou Liou

Room: W406J

Tel: 908-737-4253

E-mail: jlou@kean.edu

Degrees Offered

M.S. in Computer Information Systems

Program Description

The Master of Science in Computer Information Systems is designed to give students the analytic and technical skills necessary to solve problems using computer information systems. Students learn to design, build and maintain complex systems utilizing current and evolving technologies. The applied nature of the computer information systems program gives students the implementation experience and confidence to play a leadership role in developing future systems for business, gaming, government and industry. Students also have the opportunity to work with faculty on individual projects and research.

Prerequisites

In addition to the University's admission requirements:

- Baccalaureate degree in Computer Science
- Algorithm Analysis, System Analysis and Design, Computer Security, Computer Organization and Architecture, Discrete Math, Calculus II, proficiency in Java, C++ or an equivalent.

Degree Requirements

- 30 credits
- Comprehensive exam

Required Courses

CPS 5100: Computer Information Systems	15
CPS 5440: Advanced Analysis of Algorithms	3
CPS 5920: Database Systems	3
CPS 5950: Software Engineering	3
CPS 5981: Software Assurance	3

Electives (choose 4)

CPS 5900: Numerical Analysis	3
CPS 5910: Computer Simulations of Models	3
CPS 5921: Data Mining	3

CPS 5930: Operating Systems Concepts	3
CPS 5931: Computer Networking	3
CPS 5940: Artificial Intelligence and Expert Systems	3
CPS 5951: Human Computer Interaction	3
CPS 5960: Operations Research: Models and Algorithms	3
CPS 5965: High Performance Computing	3
CPS 5970: Web Programming	3
CPS 5990: Special Topics	3

Required Capstone Course

CPS 5995: CIS Capstone	3
Total	30

Course Descriptions

CPS 5100 Computer Information Systems - Concepts, principles, and state-of-the-art trends in information systems including enterprise system architectures. Information systems and project management. Enterprise system architectural and analysis. The role of system architecture in software engineering, specifically during requirements analysis, design and implementation. Emerging topics in the development of information systems applications.

CPS 5440 Advance Analysis of Algorithms – Advanced algorithm analysis techniques. Algorithms involving advanced data structures, sorting, trees, and graphs. NP-Completeness. Randomized Algorithms. Approximation Algorithms.

CPS 5920 Database Systems – Enterprise database management systems; database design; database implementation; storage and indexing; transaction processing concepts; data warehousing, data mining and online analytical processing (OLAP); emerging database applications.

CPS 5950 Software Engineering – The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software. Methods and techniques used in the management and development of large scale information systems. Project management,

joint applications development, rapid applications development, cost models, user requirements, analysis, design, implementation strategies, testing techniques, quality and maintenance issues. Use of CASE and rapid prototyping tools is required.

CPS 5951 Human Computer Interaction – Principles and methods in modern human computer interaction design and development; User requirements; Usability tests, Interaction devices; Interaction design; Interface evaluation; Tools and platforms.

CPS 5981 Software Assurance - Concepts, practices and methodologies for ensuring integrity, security, and reliability in software code development, including processes and procedures that diminish the possibility of erroneous code, malicious code, or trap doors that could be introduced during development.

CPS 5995 CIS Capstone - A software implementation project course that integrates theory and practice in design and development of a large computer information system. The students will choose a project that involves a solution to an enterprise problem, and then research, design, develop, test, document, demonstrate and present results to the class. The instructor must approve the project.

CPS 5999 Graduate Teaching Practicum – Students assist the faculty in teaching by assisting in recitations or laboratory sections that supplement a lecture course. The student receives regularly scheduled supervision from the faculty instructor. May be used as an open elective only, and may be repeated up to 5 times, for a total of 6 hours of credit.

Faculty

Chang, George, Professor B.S., SUNY Stony Brook University, M.S., NJ Institute of Technology, Ph.D., NJ Institute of Technology

Emanouilidis, Emanuel, Professor B.S., NJ Institute of Technology, M.S., NJ Institute of Technology

Liou, Jing-Chiou, Assistant Professor B.S., National Taiwan Institute of Technology, M.S., NJ Institute of Technology, Ph.D., NJ Institute of Technology

Morreale, Patricia A, Associate Professor B.S., Northwestern University, M.S., University of Missouri, Ph.D., Illinois Institute of Technology

Mosteiro, Miguel A, Assistant Professor B.S., University Tecnologica Nacional Buenos Aires, M.S. Rutgers University, Ph.D., Rutgers University

Ryder, Jack H., Associate Professor B.S., Oneonta State University, M.S., State University of NY, Binghamton, Ph.D., State University of NY, Binghamton

Santomauro, Dennis J, Professor B.S., St Peters College, M.S., Rutgers University

Stewart-Gardiner, Carolee, Assistant Professor B.A., State University of NY, Buffalo, M.S., Hofstra University