INFORMATION SYSTEMS AND TECHNOLOGY MANAGEMENT

UNDERGRADUATE

Bachelor's programs

- Bachelor of Business Administration with a concentration in information systems and technology management (http://bulletin.gwu.edu/business/undergraduate-programs/business-administration)
- Combined Bachelor of Business Administration and Master of Science in Information Systems Technology (http://bulletin.gwu.edu/business/information-systems-technology-management/combined-bba-ms)

GRADUATE

Master's program

- Master of Science in Information Systems Technology (http://bulletin.gwu.edu/business/information-systems-technology-management/ms)

FACULTY

Professors E.G. Carayannis, M.J. Granger

Associate Professors J. Artz, S. Dasgupta, R.G. Donnelly (Chair), W. Duan, R.A. Lumley

Assistant Professors Y.C. Ho, Y. Park

COURSES

Explanation of Course Numbers

- Courses in the 1000s are primarily introductory undergraduate courses
- Those in the 2000–4000s are upper-division undergraduate courses that can also be taken for graduate credit with permission and additional work
- Those in the 6000s and 8000s are for master's, doctoral, and professional-level students
- The 6000s are open to advanced undergraduate students with approval of the instructor and the dean or advising office

Note: M.S.I.S.T. candidacy or departmental approval is prerequisite to ISTM 6201 Information Systems Development and Applications–ISTM 6225 Enterprise Architecture.

ISTM 6401 Individual and Group Decision Processes–ISTM 6490 Special Topics are available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 3119. Introduction to Programming. 3 Credits.
For students already familiar with basic computer concepts, who will learn a programming language, such as Visual Basic, useful for business applications. Emphasis on computer applications in accounting and management information systems through hands-on programming. Prerequisite: BADM 2301.

ISTM 4120. Business Systems Development. 3 Credits.
Analysis, design, and implementation of management information systems (MIS). Structured methodologies and techniques for various stages of the MIS development process. Computer-aided software engineering tools. May be taken for graduate credit with permission of program director and instructor. Prerequisites: CS 1111 or ISTM 3119 or permission of instructor.

ISTM 4121. Database Design and Applications. 3 Credits.
Theory, architecture, and implementation of database management systems in corporate and organization information systems. Fundamental concepts of database management and processing. Hands-on experience with database management packages. Prerequisites: CS 1111 or ISTM 3119 or permission of instructor.

ISTM 4123. Business Data Communications. 3 Credits.
A technical overview of data communication concepts that are useful in the design and management of local and wide area networks. Internet technologies and their business applications are emphasized. Prerequisite: BADM 2301.

ISTM 4123W. Business Data Communications. 3 Credits.
A technical overview of data communication concepts that are useful in the design and management of local and wide area networks. Internet technologies and their business applications are emphasized. Prerequisite: BADM 2301.

ISTM 4130. Writing on the Ethics of Technology. 3 Credits.
Complex ethical dilemmas inherent in the introduction of new technologies and the influence human behavior asserts on these problems. Students write stories to explore and evaluate specific ethical problems relative to technology from various perspectives.

ISTM 4130W. WritingOnTheEthicsofTechnology. 3 Credits.
Complex ethical dilemmas inherent in the introduction of new technologies and the influence human behavior asserts on these problems. Students write stories to explore and evaluate specific ethical problems relative to technology from various perspectives.

ISTM 4215. Human-Computer Interaction. 3 Credits.
An introduction to and overview of the field of human-computer interaction (HCI), an interdisciplinary field that integrates theories and methodologies from computer science, cognitive psychology, design, and other areas. Readings cover current theory and practice in interface specification, design, and evaluation, and include current and classic research papers in the field.
ISTM 4900. Special Topics. 3 Credits.
Experimental offering; new course topics and teaching methods. May be repeated once for credit.

ISTM 4900W. Special Topics. 3 Credits.
Experimental offering; new course topics and teaching methods. May be repeated once for credit.

ISTM 4995. Independent Study. 3 Credits.
Assigned topics. Admission by prior permission of advisor. May be repeated once for credit.

ISTM 6201. Information Systems Development and Applications. 3 Credits.
The information systems life cycle evaluated in terms of technologies, impact, and management. Structured and object-oriented analysis, prototyping, software reuse, testing, life-cycle costs, software development environments, and organizational and behavioral aspects of development projects. Prerequisite: ISTM 4120 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6202. Relational Databases. 3 Credits.
Introduces the theory of relational databases and commences an in-depth discussion of Relational database theory and design at the conceptual, logical, and physical levels. Structured query language (SQL) is covered in depth. Prerequisite: ISTM 4121 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6203. Telecommunications and Enterprise Networks. 3 Credits.
The technologies and applications of telecommunication systems in the commercial and public sectors with emphasis on wireless, mobile, and Internet communication protocols. Systems technology and configurations to support business application requirements are evaluated. Functional characteristics of network technologies. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6204. Information Technology Project Management. 3 Credits.
Project and program management practices with an emphasis on information technology projects. The basic tools of project management: work breakdown structure, cost, schedule and performance goal setting, and risk analysis. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6205. Internet Computing. 3 Credits.
Concepts, architectures, frameworks, and technology of web application development. The Internet as hardware and software architecture for creating business applications. Web and web application servers, system development methods and techniques, client-side and server-side scripting. Prerequisite: ISTM 3119 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6206. Information Systems Security. 3 Credits.
Comprehensive examination of computer security issues from the design, management, and business information system ownership perspectives. System security concepts, methods, and policies from the design and planning stages to multi-level system implementation. Design of risk assessment strategies to achieve security goals. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6207. Information Resources Management. 3 Credits.
Information resources management strategically assesses and exploits information technology assets for competitive advantage. The CIO role in information resources management, planning, security, information integration, enterprise model development, and data administration. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6210. Integrated Information Systems Capstone. 3 Credits.
Capstone project course in which students apply conceptual and technical knowledge in analyzing, planning, and designing an on-line information system. Culminates with system proposal/design presentations. Restricted to eligible students in their final semester. Prerequisite: ISTM 6201–ISTM 6207 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6211. Data Warehousing and Online Analytical Processing. 3 Credits.
Introduction to the theory of data warehousing, dimensional data modeling, and online analytical processing (OLAP) through case studies, technology, and a design project. Prerequisite: ISTM 6202 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6213. Enterprise Web and Database Applications. 3 Credits.
Enterprise applications concepts, architecture, and technologies for emerging technologies and IT frameworks. The Internet as a major resource for globally distributed applications using grid and utility computing. Web servers, development methods and techniques, data stores for massively distributed applications, and client/server side scripting. Prerequisite: ISTM 6202, ISTM 6205 and M.S.I.S.T. candidacy or departmental approval.

ISTM 6214. Advanced Programming and Business Applications. 3 Credits.
Advanced programming design, development, and analysis topics with an emphasis on business applications. Problem modeling and development of algorithm solutions. Basic data structures and algorithms, such as linked list, stack and tree, graph theory, sorting and searching. Prerequisite: M.S.I.S.T. candidacy or departmental approval.
ISTM 6215. Human-Computer Interaction. 3 Credits.
Human-computer interaction as an interdisciplinary endeavor integrating theories and methodologies from computer science, cognitive psychology, design, and many other areas. Theory and practice in interface specification design and evaluation, and research. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6221. Management Perspectives in Electronic Commerce. 3 Credits.
The tools, skills, and business concepts surrounding the emergence of E-commerce and its information technologies from operational and strategic perspectives. E-commerce security, privacy, content selection and rating, authentication, encryption, acceptable use policies, intellectual property rights, and legal liabilities. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6222. IS/IT Strategy and Implementation. 3 Credits.
The development and implementation of information systems and technology strategies designed to align with and maximize business strategy applications and approaches in a challenging and increasingly global business environment. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6223. Technology Entrepreneurship. 3 Credits.
Case studies on the innovation-entrepreneurship processes used to launch and build new ventures based on information technology and on technology more broadly. Organizing for innovation, raising venture capital, managing the small technology-based venture, marketing technology products and services, intellectual property considerations, and new venture proposal development. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6224. Management of Technology and Innovation. 3 Credits.
Business, technological, economic, and political factors that influence the development and deployment of new technology products, processes, and services. Concepts and practices useful in managing technology and enhancing corporate innovation, corporate organizational alternatives, new approaches, and sources of competitive advantages. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6225. Enterprise Architecture. 3 Credits.
Concepts of enterprise architecture as a management tool for organizations to align their information technology assets, people, operations, and projects with operational characteristics. Service-oriented architectures, performance reference models, configuration management, system development life cycles, and tiered application architectures. Prerequisite: M.S.I.S.T. candidacy or departmental approval.

ISTM 6226. Principles of Information Systems. 3 Credits.
Overview of all information systems, including integration of management, information, and systems concepts into a unified framework. Management information systems development, design, implementation, evaluation strategies.

ISTM 6232. ISTM6242201303. 3 Credits.
Technology transfer among advanced countries and LDCs. Comparative science and technology policies and capabilities of countries. Technology basis for international trade, licensing, patenting, and joint ventures. Global transfer of military technologies and export controls. Technology in economic development.

ISTM 6233. Emerging Technologies. 3 Credits.
Exploration of new developments in scientific and technological innovation, including automation, energy, medicine, bioengineering, social science, information technology, and space. Emphasis on forecasting these technological advances and assessing their economic and social effects. The role of advancing technology in driving social change.

ISTM 6234. New Venture Financing. 3 Credits.
Fundamentals and practice of due diligence and screening of early-stage investment opportunities. Same as FINA 6234.

ISTM 6239. Sem:Competitiveness/Technology. 3 Credits.
Capstone course integrating the field of management of science, technology, and innovation. Commercialization of technology in the private sector and the impact on competitiveness. Implementation of technology in the public sector. Technology development, from new product concept to utilization. Prerequisite: ISTM 6224 or MBAD 6253; ISTM 6232 or ISTM 6233 or permission of instructor.

ISTM 6242. Systems Analysis-Info Systems. 3 Credits.
Development of a specification for an information system. Topics include CASE tools, data gathering, information flow modeling, object-oriented analysis, data file organization, input/output and other nonfunctional requirements. Prerequisite: MBAD 6252.

ISTM 6243. Human Factors in Information Systems. 3 Credits.
The user-computer interaction, human factors of on-line dialogues, interfacing, and various approaches to user-system interaction. Emphasis on the development and evaluation of user-computer interfaces using software such as Visual BASIC and Windows.

ISTM 6244. Telecommunications: Technology, Applications, and Operations. 3 Credits.
Basic technical concepts, applications, and trends of telecommunications; operations; cost considerations of implementing telecommunications systems. Prerequisite: MBAD 6252.

ISTM 6245. Database Management for Information Systems. 3 Credits.
An introduction to the conceptual and logical design of relational databases and techniques for population and exploitation of relational databases. Topics include information modeling, normalized table design, and Structured Query Language. Prerequisite: MBAD 6252.
ISTM 6251. Info Systems Applications. 1.5 Credit.

ISTM 6290. Special Topics. 1-3 Credits.
Experimental offering; new course topics and teaching methods. May be repeated once for credit.

ISTM 6298. Directed Readings and Research. 1-3 Credits.

ISTM 6401. Individual and Group Decision Processes. 3 Credits.
Study of the individual and group processes in decision making in organizations. Topics include decision effectiveness, decision analysis techniques, group dynamics, and managerial style as related to decision making. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6402. Quantitative Methods for Information Systems. 3 Credits.
Introductory study of quantitative techniques for problem solving. Statistical concepts, including confidence intervals, hypothesis testing, correlation, and regression. Linear programming. Applications and case studies involving management information systems. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6404. Enterprise Networks in Organizations. 3 Credits.
The role of data communications and networking within organizations. LANs and interconnecting LANs to create enterprise networks. Emerging technologies such as videoconferencing, multimedia, and ATM. The interaction between networks and MIS as typified by client-server architectures is emphasized. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6405. Database Systems. 3 Credits.
Application and implementation of database management systems in the public and private sectors. Database organization, creation, maintenance, and management. Client-server technology. Review of commercial database management systems. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6406. Decision Support Systems and Methods. 3 Credits.
Computer-based decision-making aids and simulations. Issues in effective implementation of decision support systems. Review and analysis of various expert systems, including tools and generators, classification vs. diagnostic type systems, and building modules. Design of decision support and expert systems. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6407. Introduction to MIS Business Relationships. 3 Credits.
Introduction to MIS business solutions. Integration of MIS into the business and organizational environment. Case studies of various organizational structures and MIS needs and solutions. Economic analysis of MIS applications.

ISTM 6408. Strategic Planning and Business Process Engineering. 2 Credits.

ISTM 6410. Information Systems Security. 2 Credits.

ISTM 6411. Information Systems Design. 4 Credits.
Introduction to the design and analysis of information systems. The systems development life cycle, analysis of requirements, design of logical systems, analysis and design of user interfaces, system documentation and specifications. Planning for system implementation, evaluation, and maintenance. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6412. The Information System Development Process. 2 Credits.
Management decisions and activities during the life cycle of an information system. Project estimation and planning for information systems. Contractual issues in system development and acquisition. Requirements analysis, systems analysis, development, testing, and maintenance. Rapid prototyping, spiral model development, and alternative development strategies. Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 6490. Special Topics. 1-3 Credits.
Available only to students enrolled in the Executive Master of Science in Information Systems Technology.

ISTM 8300. Thesis Seminar. 3 Credits.

ISTM 8333. Seminar: Management of Science, Technology, and Innovation. 3 Credits.

ISTM 8340. Philosophical Issues in Information Systems. 3 Credits.
Seminar for doctoral students interested in information systems. Various philosophical traditions and insights from those traditions applied to problems in information systems.
**ISTM 8341. Advanced Topics in MIS Research. 3 Credits.**
For information systems doctoral students. Seminal papers and leading methods and instruments as applied to MIS research.

**ISTM 8385. Special Topics in Research Methods. 3 Credits.**
Research problems and issues related to student dissertations form topics for readings, group discussions, and assigned papers.

**ISTM 8390. Philosophical Foundations of Administrative Research. 3 Credits.**
Philosophy of science as applied to research in administration. Topics include the nature and current problems of epistemology, the development and role of theories, and the relationship between theory, methodology, and empirical data.

**ISTM 8391. Advanced Problems in Research Methodology. 3 Credits.**
Use of models and theoretical frameworks in research; formulation of research questions, hypotheses, operational definitions, research designs, sampling and data analysis approaches. For doctoral candidates who have completed the general examination and all courses and are preparing for their dissertation.

**ISTM 8397. Doctoral Seminar. 1-3 Credits.**
Current research and scholarly issues in management science.

**ISTM 8398. Advanced Readings and Research. 1-12 Credits.**
Limited to doctoral candidates preparing for the general examination. May be repeated for credit.

**ISTM 8399. Dissertation Research. 1-12 Credits.**
Limited to doctoral candidates. May be repeated for credit.