INFO SCIENCE & TECHNOLOGY (IS&T)

**IS&T 1001 Special Topics (IND 0.0-6.0)**
This is designed to give the department an opportunity to test a new course. Variable title.

**IS&T 1551 Implementing Information Systems: User Perspective (LEC 3.0)**
Introduction to object-oriented programming in the context of developing and implementing the various components of an information system with particular attention given to system interface such as window and web forms. Class will include numerous projects covering foundational programming.

**IS&T 1552 Implementing Information Systems: Data Perspective (LEC 3.0)**
Continuation of object-oriented programming in the context of developing and implementing the various components of an information system with particular attention given to database incorporation. Class will include numerous projects covering intermediate topics. Prerequisite: IS&T 1551 or Comp Sci 1570 or Comp Sci 1970 or Comp Sci 1971.

**IS&T 1750 Introduction to Management Information Systems (LAB 1.0 and LEC 2.0)**
This course familiarizes the students with the fundamental concepts and principles of management information systems. Topics covered include the strategic role of IT, decision support systems, database and datawarehouse, enterprise applications, mobile applications, and social and ethical issues related to information systems.

**IS&T 2000 Special Problems (IND 0.0-6.0)**
Problems or readings on specific subjects or projects in the department. Consent of instructor required.

**IS&T 2001 Special Topics (IND 0.0-6.0)**
This is designed to give the department an opportunity to test a new course. Variable title.

**IS&T 2002 Cooperative Training in Information Science & Technology (IND 0.0-6.0)**
On-the-job experience gained through cooperative education with industry with credit arranged through departmental co-op advisor. Grade received depends on quality of reports submitted and work supervisors’s evaluation. Prerequisite: Completed 30 hours toward degree.

**IS&T 3000 Special Problems (IND 0.0-6.0)**
Problems or readings on specific subjects or projects in the department. Consent of instructor required.

**IS&T 3001 Special Topics (LEC 0.0-6.0)**
This course is designed to give the department an opportunity to test a new course. Variable title.

**IS&T 3131 Computing Internals And Operating Systems (LEC 3.0)**
Design-oriented introduction to computer components and operation. Standard codes; number systems; base conversions; computer arithmetic; boolean algebra; operating systems components including memory management, device management, and I/O management; and related issues are covered. Prerequisite: IS&T 1552 or Comp Sci 1510.

**IS&T 3321 Network Performance Design And Management (LEC 3.0)**
This course provides analytical capabilities needed to effectively design, deploy, and manage computer networks and protocols. Prerequisites: IS&T 3333.

**IS&T 3333 Data Networks and Information Security (LEC 3.0)**
The course provides an overview of current and evolving networking and information security principles. Concepts include network standards and protocols; operation and management; switching and routing; area networks; wireless network infrastructure; security frameworks, policies, and management. Prerequisites: IS&T 1750; IS&T 1552 or Comp Sci 1510.

**IS&T 3343 Systems Analysis (LEC 3.0)**
Introduction to the processes by which business information systems are analyzed, designed, and introduced into the business environment. Topics include investigation of existing systems, requirements analysis, logical and physical design, database design, forms design, and report analysis. Prerequisite: IS&T 3423.

**IS&T 3420 Introduction to Data Science and Management (LEC 3.0)**
Introduces students to increasing business success through analysis of large-scale data collections. Topics include: import/export of data, summary statistics, cross-tabulation, data transformations (sub setting, merging, sorting and aggregation), modeling methods, and visualization. Significant programming in R is expected. Prerequisites: IS&T 1552 or Comp Sci 1510.

**IS&T 3423 Database Management (LEC 3.0)**
The course introduces the concepts of database management systems. Issues in database architecture, design, administration, and implementation are covered. Prerequisites: IS&T 1750; IS&T 1552 or Comp Sci 1510.

**IS&T 3443 Database Applications in Business (LEC 3.0)**
Design, development and implementation of application software typical to the modern business environment utilizing popular commercial database management systems such as Oracle and Access. Focus given to business case modeling, requirement analysis, database design, and implementation challenges. Project oriented. Prerequisite: IS&T 3343.

**IS&T 3553 Modular Software Systems in Java (LEC 3.0)**
Introduction to Software Life Cycle and characteristics of large modular software systems. Exploration of software support for such systems, using Java, including use of GUI interfaces, advanced I/O and String handling, Interfaces, Threads, and other modularity features. Program project included. Prerequisites: IS&T 1552 and IS&T 3131.

**IS&T 4001 Special Topics (LEC 0.0-6.0)**
This is designed to give the department an opportunity to test a new course. Variable title.

**IS&T 4099 Undergraduate Research (IND 0.0-6.0)**
Designed for the undergraduate student who wishes to engage in research. Not for graduate credit. Not more than six credit hours allowed for graduation credit. Subject and credit to be arranged with the instructor.

**IS&T 4257 Network Economy (LEC 3.0)**
Emerging Network/Internet economy, using traditional economic tools. Topics: production and reproduction cost of information, information as an "experience good," versions of products, switching cost, lock-in effects, market adoption dynamics, first-mover advantage, intellectual property rights. Prerequisite: Econ 1100 or Econ 1200. (Co-listed with Econ 4130).
IS&T 4261 Information Systems Project Management (LEC 3.0)
The course overviews general project management principles and then
focuses on information system application development. Topics include
requirements analysis, project scheduling, risk management, quality
assurance, testing, and team coordination. Prerequisites: IST 1552 or
Comp Sci 1510; Senior Standing.

IS&T 4335 Fundamentals of Mobile Technology for Business (LEC 3.0)
A broad overview of mobile technology use in business
environments. Topics include the mobile industry; mobile network
and wireless standards; mobile devices; mobile web design and app
development; social and user experience issues; mobile marketing and
commerce. Prerequisites: IS&T 3333.

IS&T 4450 Introduction to Information Visualization (LEC 3.0)
Topics include: the visualization development framework, traditional
presentations of data, human perception and aesthetics, colorspace
theory, visualization algorithms and software, modern visualizations
of large data sets. Application of R packages will be emphasized
throughout. Prerequisites: Statistics, Calculus, and Programming
Knowledge.

IS&T 4641 Electronic and Mobile Commerce (LEC 3.0)
Introduction to fundamental concepts of management and application
to IT and support of commerce. Examines the use of IT in business
processes and the management issues of integrating IT into organization
processes to gain a competitive advantage. Prerequisites: IS&T 1750 and
at least Sophomore standing.

IS&T 4642 E-Commerce Architecture (LEC 3.0)
Course will cover the issues associated with computer architecture, as
it relates specifically to e-commerce applications. Topics will include
e-commerce systems and processes, specialized software, and databases.
Prerequisite: IS&T 3333.

IS&T 4654 Web and Digital Media Development (LEC 3.0)
This course covers techniques and tools for design and development of
web-based media, including text, graphics, animation, audio, and video.

IS&T 4680 Introduction to Web and New Media Studies (LEC 3.0)
The course covers web culture, including topics such as social
media, citizen journalism, crowd intelligence, privacy, and copyright.
Prerequisite: Junior or Senior standing.

IS&T 5000 Special Problems (IND 0.0-6.0)
Problems or readings on specific subjects or projects in the department.
Consent of instructor required.

IS&T 5001 Special Topics (LEC 0.0-6.0)
This is designed to give the department an opportunity to test a new
course. Variable title.

IS&T 5040 Oral Examination (IND 0.0)
After completion of all other program requirements, oral examinations for
on-campus M.S./Ph.D. students may be processed during intersession.
Off-campus M.S. students must be enrolled in oral examination and
must have paid an oral examination fee at the time of the defense/
comprehensive examination (oral/ written). All other students must enroll
for credit commensurate with uses made of facilities and/or faculties. In
no case shall this be for less than three (3) semester hours for resident
students.

IS&T 5099 Research (IND 0.0-15)
Investigations of an advanced nature leading to the preparation of a
thesis or dissertation. Consent of instructor required.

IS&T 5168 Law and Ethics in E-Commerce (LEC 3.0)
Provides the ethical framework to analyze the ethical, legal, and social
issues that arise for citizens and computer professionals regarding
the computerization of society. Topics include: free speech, privacy,
intellectual property, product liability, and professional responsibility. (Co-
listed with Philos 4368).

IS&T 5251 Technological Innovation Management and Leadership (LEC 3.0)
The course focuses on the knowledge and skills necessary for the
development and implementation of effective strategies for the
management of technology-based organizations. This involves:
developing a general management perspective on technology and
innovation, examining the problems of new product development,
identifying distinctive technological competencies, licensing and
marketing technologies, assessing the organizational and industrial
context of technology. Prerequisite: Senior or Graduate Standing.

IS&T 5420 Business Analytics and Data Science (LEC 3.0)
Analysis of large business data sets via statistical summaries, cross-
tabulation, correlation, and variance matrices. Techniques in model
selection, prediction, and validation utilizing general linear and logistic
regression, Bayesian methods, clustering, and visualization. Extensive
programming in R is expected. Prerequisites: Calculus, Statistics, and
Programming knowledge.

IS&T 5652 Advanced Web Development (LEC 3.0)
Advanced Web development techniques to provide dynamic interaction;
methoed for extracting and delivering dynamic information to/from Web
servers - a hands-on approach. Emphasis on interaction with servers;
mobile software development; processing of graphics and web video.
Project work is required. Prerequisites: IS&T 1551 and IS&T 4654.

IS&T 5885 Human-Computer Interaction (LEC 3.0)
Introduction to the field of Human-Computer Interaction (HCI). Students
examine issues and challenges related to the interaction between
people and technology. The class explores the social and cognitive
characteristics of people who use information systems. Students
learn techniques for understanding user needs, interface prototyping &
interface evaluation.

IS&T 5886 Prototyping Human-Computer Interactions (LAB 1.5 and LEC 1.5)
This course explores novel HCI and UX technologies as well as methods
and tools for creating system prototypes, including best practices and
guidelines for optimal user experiences. Example concepts include
mobile applications, behavioral monitoring, gamification, natural user
interfaces, haptics, and computers as social actors. Prerequisite:
Preceded or accompanied by IS&T 5885.

IS&T 5887 Human-Computer Interaction Evaluation (LAB 1.5 and LEC 1.5)
This course covers research and analysis methods and tools for
evaluation of the impact of information technology systems on humans
and organizations. The focus will be on practical evaluation with the goal
of providing recommendations for improving system functionality and
usability. Prerequisite: Preceded or accompanied by IS&T 5885.

IS&T 6000 Special Problems (IND 0.0-6.0)
Problems or readings on specific subjects or projects in the department.
Consent of instructor required.

IS&T 6001 Special Topics (LEC 0.0-6.0)
This is designed to give the department an opportunity to test a new
course. Variable title.
IS&T 6050 Continuous Registration (LEC 1.0)
Doctoral candidates who have completed all requirements for the degree except the dissertation, and are away from the campus must continue to enroll for at least one hour of credit each registration period until the degree is completed. Failure to do so may invalidate the candidacy. Billing will be automatic as will registration upon payment.

IS&T 6099 Research (IND 0.0-15)
Investigations of an advanced nature leading to the preparation of a thesis or dissertation. Consent of instructor required.

IS&T 6261 Advanced Information Systems Project Management (LEC 3.0)
Project management principles, first from a general perspective, and then focused specifically on information system application development are explored. Topics include requirements analysis, project scheduling, risk management, quality assurance, testing, and team coordination. Report writing and research literature searches are required. Prerequisites: IS&T MS Entrance requirements, with strong programming knowledge.

IS&T 6335 Mobile Technology for Business (LEC 3.0)
Overview of mobile technology use in business environments. Topics include: mobile industry; mobile network and wireless standards; mobile devices; mobile web design and app development; social and user experience issues; mobile marketing and commerce. Project required. Prerequisites: IS&T 3333 or equivalent.

IS&T 6336 Foundations of Internet Computing (LEC 3.0)
The foundations of Internet Computing include computer networks and Web sites. Networks are covered thoroughly and research directions for networking and information security are discussed. Web site design and research findings about site usability considerations are examined. Prerequisite: IS&T MS entrance requirements, including solid programming knowledge.

IS&T 6443 Information Retrieval and Analysis (LEC 3.0)
Covers the applications and theoretical foundations of organizing and analyzing information of textual resources. Topics include information storage and retrieval systems, web search engines, text mining, collaborative filtering, recommender systems. Students will also learn the techniques with the use of interactive tools such as SAS. Prerequisite: ERP 5410 or statistics knowledge.

IS&T 6444 Essentials of Data Warehouses (LEC 3.0)
This course presents the topic of data warehouses and the value to the organization. It takes the student from the database platform to structuring a data warehouse environment. Focus is placed on simplicity and addressing the user community needs. Prerequisite: IS&T 3423 or equivalent relational database experience. (Co-listed with BUS 6887).

IS&T 6445 Database Marketing (LEC 3.0)
Intro to methods and concepts used in database marketing: 1) predictive modeling techniques (e.g., regression, decision trees, cluster analysis) and 2) standard processes for mapping business objectives to data mining goals to produce a deployable marketing model. Metrics like lifetime value of a customer and ROI will be covered. Several application areas covered. Prerequisite: Statistics understanding, programming understanding, familiarity with spreadsheets.

IS&T 6448 Building the Data Warehouse (LEC 3.0)
Data modeling and processes needed to populate a data warehouse; tradeoffs among several models and tools; technical issues that are faced, such as security, schemas, Web access, other reporting techniques. Prerequisite: IS&T 6444.

IS&T 6450 Information Visualization (LEC 3.0)
Topics/activities include: the visualization development framework, traditional presentations of data, human perception and aesthetics, colorspace theory, visualization algorithms and software, case studies of modern topology, research into visualization algorithms and implementations in R. Students will produce significant programs and visualizations. Prerequisites: Statistics, Calculus, and Programming Knowledge.

IS&T 6641 Advanced Electronic and Mobile Commerce (LEC 3.0)
Fundamental concepts of management and application to IT and support of commerce. Examines the use of IT in business processes and the management issues of integrating IT into organization processes to gain a competitive advantage. Includes a major end-of-semester project. Prerequisites: Knowledge of management information systems.

IS&T 6654 Advanced Web and Digital Media Development (LEC 3.0)
This course covers advanced techniques and tools for the design and development of web-based media, including text, graphics, animation, audio, and video. This course is an advanced version of Web and Digital Media Development, with additional assignments.

IS&T 6680 Advanced Web and New Media Studies (LEC 3.0)
The course covers web culture, including topics such as social media; citizen journalism, crowd intelligence, privacy, and copyright. This course is an advanced version of Intro to Web Studies, with additional assignments.

IS&T 6887 Research Methods in Business and IS&T (LEC 3.0)
This course covers quantitative and qualitative research methods for exploring the interaction between people and information technologies. The course covers techniques and tools for carrying out literature reviews, forming research goals, designing research, conducting data analyses; and preparing manuscripts and live presentations. (Co-listed Bus 6887).