INFORMATION SCIENCES AND TECHNOLOGY (IST)

IST 501: Interdisciplinary Research Design for Information Sciences and Technology

3 Credits

An interdisciplinary introduction to graduate research design for investigating how data and information technologies are created, analyzed, and evaluated. IST 501 serves as the central foundational course for graduate students who intend to conduct research in IST. Although each student may eventually focus on one or several methods discussed in the course, the College is committed to providing all of its research students an interdisciplinary mindset regarding their own and their peers' research activities. This mindset is a defining feature of IST research training. The course provides foundational information regarding three contrasting research perspectives of IST: Social Informatics, Human-Centered Design and Computational Informatics. The three perspectives are presented in an interleaved fashion, one week at a time, with gradually increasing complexity and sophistication in the methods used. The methods address requirements for, design of, and impacts of information technologies used to meet people's information needs at multiple levels of analysis, including individuals, groups, organizations, and national and global cultures. The technologies investigated are of various types, including algorithms, structured data, user interfaces, and distributed systems. Each one-week methods topic is practiced through an individual homework activity and a team project is used to provide an integrated application activity that cumulates throughout the semester. Through reading of contemporary and classic literature, demonstrations and practice with specific research techniques, and sharing and reflection on individual and team research activities, students will explore fundamental assumptions, theories and directions in contemporary research design useful to researchers in IST. The emphasis of this course is on defining and developing conceptual linkages between human behavior, the social, organizational, and cultural context of information and technology use, human experience when learning or using information and computing technologies, and the construction of information and computing technologies. The interdisciplinary research design will operate at individual, group, and other units of human, social, and organizational analysis, and across a range of information technologies.

IST 503: Foundations for IST Research

3 Credits

Study of major methodological, normative, and theoretical issues in philosophy of science related to reserach in information sciences and technology. IST 503 Foundations for IST Research (3) This course is a study of major methodological, normative, and theoretical issues in the philosophy of science related to research in information science and technology. A significant part of this course will involve coordinating issues and problems customarily associated with the philosophy of science in general with current research in information science and technology (IST) in particular. In order to achieve this coordination, the study of classical texts in the philosophy of science will be interspersed at appropriate places with lectures and topics that exhibit relevant faculty research in various IST related disciplines.The course focuses on the main arguments that have been advanced in Anglo-American philosophy of the science for the period beginning about seventy years ago up to the present. The course contradicts the view of a single unitary "philosophy of science." It shows a series of positions and arguments that continue to lead on to still deeper questions. Usually the student will have adopted one of the classical positions without having examines it or defended it rigorously.Readings will progress in a historical fashion through arguments that attempt to provide a justification for the truth claims of science. The course will begin with a consideration of logical positivism in its early forms, i.e. the ideas of the Vienna Circle, and the early Wittgenstein's theory of meaning. The course will go on to the writings of Karl Popper especially as found in his Logic of Scientific Discovery. Continuing the historical development, Kuhn's "The Structure of Scientific Revolutions" will be considered. The discussion will then progress to the Popper-Kuhn debates involving the sophisticated falsificationists (Lakatos) and eclectic approaches like Feyerabend's. Finally, Richard Bernstein's book, Beyond Objectivism and Relativism is reviewed summarizing the debate. This final view strives to uncover the strong points in the opposing positions reviewed early in the course. Then it sets a hermeneutical position which he derives principally from the philosophy of Hans Georg Gadamer. This position amounts to a new and interesting view on how knowledge is attained in science and in life in general.The course relates the debates in the arguments in the philosophy of science to research issues in IST.

Concurrent: IST 501

IST 504: Foundations of Theories and Methods of Information Sciences and Technology Research

3 Credits

Provides the foundation to the research and theories of how technologies are used to meet society's, groups' and individuals' information needs. IST 504 Foundations of Theories and Methods of Information Sciences and Technology Research (3) This course provides an overview of the diverse fields that comprise the information sciences. The course has three broad objectives. First, the course serves as an overview to the theories, models, findings, research methods and research-related issues that frame the multiple fields of the information sciences. Second, the course provides students with skills of critical evaluation of literature. Finally, the course provides students a means to begin formulating researchable topics and questions. The course is designed as a fundamental course for research-oriented graduate students in the information sciences. The specific focus is a critical treatment of the research relative to the questions asked, views of a technology’s affordances and potential uses, the implementation of the research, and conclusions drawn. Through reading of contemporary and classic literature, ongoing debate, reflection and synthesis, and active analyses, students will explore fundamental assumptions, theories and directions in the contemporary research in the various fields of the information sciences. The emphasis of this course is on defining and developing conceptual linkages between human and social behavior, information and the use of computing technologies. Assessments will be based on a number of short summary papers and an extensive synthesis of literature organized around a conceptual framework. Because this is an interdisciplinary subject, students should be prepared to read outside their primary research/interest area and be ready to embrace and integrate new knowledge from related fields into their primary field.

IST 505: Foundations of Research Design in Information Sciences and Technology

3 Credits

Provides the foundations on research design and methods used in information sciences and technology. IST 505 Foundations of Research Design in Information Sciences and Technology (3) This course develops students’ abilities to conduct academic research, formulate a relevant thesis proposal, present and discuss the progress of their work, and conduct a small-scale research project in an information sciences and technology-related area. It provides an overview of the major research methods used in the area of information sciences and technology, including quantitative, qualitative, computational, and design approaches. The course emphasizes developing and practicing research design, execution, evaluation, and writing skills through application of the concepts that define the course.

Prerequisite: IST 504

IST 510: Foundations in Computational Informatics

3 Credits

Foundational theories and techniques in general computational informatics.

Prerequisite: IST 501

IST 511: Information Management: Information and Technology

3 Credits

Introducton to theoretical, computational, and practical issues involved in managing textual, spatial, temporal, and multimedia information in a computerized system. IST 511 Information Management: Information and Technology (3) The objective of IST 511 is to provide an introduction to the theoretical and computational issues involved in managing textual, spatial, temporal, and multimedia information. The course will survey the nature of information in various application contexts (digital libraries, digital government, healthcare information, environmental information, etc) and seek to understand their generic and specific requirements for information management. Students will be exposed to major principles and technologies for information management that are drawn from database systems, and information retrieval (IR) and spatial/geographical information systems literature. Special emphasis will be given to the problems of managing heterogeneous information sources with different ontology, representation, scales, and error characteristics.This course is required of all Information Sciences and Technology (IST) graduate students under both research Master and Ph.D. degrees. It is a foundation course that should be taken in the first or second year of graduate study. IST 501 is the prerequisite for this course.For hands-on practice and demonstration purposes, this course requires student access and use of a database management system (such as ORACLE or SQL server), a geographical information systems (Arc View or MapInfo), a information retrieval system, and/or a ERP (Enterprise Resource Planning) system.

Prerequisite: IST 501

IST 512: Information Processing Architecture and Technology

3 Credits

This course introduces the core theories, concepts, and methods regarding information and technology from an information processing point of view. IST 512 Information Processing Architecture and Technology (3) IST 512 provides an introduction to the core theories, concepts, and methods regarding Information & Technology from an information processing point of view, with emphases on information processing architecture and technology at the infrastructure layer and the middleware layer. The course consists of five major components: (1) core theories and concepts about technologies from the perspective of information-centric uses, (2) overview of three layer architecture for information processing systems, (3) infrastructure layer core technologies, (4) middleware layer core technology, and (5) technologies to guarantee the quality of information-centric uses. The detailed content of each component is described in the previous section.

IST 520: Foundations in Human-Centered Design

3 Credits

Foundational theories in Human-Centered Interactions used for Human-Centered Design.

Prerequisite: IST 501

IST 521: Human-Computer Interaction: The User and Technology

3 Credits

Users, models of users, developing the models, technology for creating interfaces; examples of good research and implications for Human-Computer Interface (HCI) design. IST 521 Human-Computer Interaction: The User and Technology (3) This course introduces students to the broad area of human-computer interaction and the idea of a theory driven interface, an underlying concept in HCI. To do this, the course starts by outlining relevant aspects of human behavior with respect to technology and how interfaces are developed, the two raw components. Students are then exposed to a tool for creating interfaces and a variety of theories of how users interact with technology on a variety of levels. These theories are validated and supplemented by usability studies. The course completes with a group project based on the readings and theories introduced in the first 12 weeks.

Prerequisite: IST 501

IST 525: Computer-Supported Cooperative Work

3 Credits

IST 525 introduces theories, empirical findings, evaluation methods, and design frameworks in computer-supported cooperative work. IST 525 Computer-Supported Cooperative Work (3) Students in the course will investigate CSCW challenges and opportunities from the dual perspectives of human-computer interaction and socio-technical systems analysis. They will analyze group interactions and concerns in collaborative activities such as written and spoken communication, design, meetings, education, decision-making, and everyday work activities. They will review and critique state-of-the-art CSCW technologies, including text-based and video communication tools, immersive meeting environments, group decision-making, workflow, and knowledge management. These technologies will provide a context for investigating and synthesizing issues related to individual use (e.g., perceptions of cost-benefit), the context of collaboration (e.g., social and cultural norms embodied in systems), and software architecture (e.g., coupling and consistency management). Students will apply their understanding of these issues in evaluation and design projects.

Prerequisite: IST 521

IST 526: Development Tools and Visualizations for Human-Computer Interaction

3 Credits

IST 526 addresses concepts and tools for developing working user interface software and prototypes to provide effective information visualizations. IST 526 Development Tools and Visualizations for Human Computer Interaction (3) This is a technical course focused on the different tools for designing and creating working software for the human-computer interface to complex systems. The course builds on the psychological and social theories, usability engineering methods, and computer programming techniques from its prerequisite courses to provide an advanced experience with user interface design and construction. Because of their importance and depth, special consideration is given to the concepts and tools used to develop sophisticated visualizations of complex information.

Prerequisite: IST 521

IST 530: Foundations in Social Informatics

3 Credits

Foundations in social theories used in the study of the human context within which information and information technology exists.

Prerequisite: IST 501

IST 532: Organizational Informatics

3 Credits

Researching Information and Information Systems in Organizations. IST 532 Organizational Informatics (3) This course provides students the opportunity to learn and experience: a) the relationships among ICT and human organizations b) the findings, approaches and issues with studying ICT and human organization c) developing and initiating research on ICT and human organization

Prerequisite: IST 501

IST 541: Qualitative Research in Information Sciences and Technology

3 Credits

Assists IST researchers in their efforts to learn about and employ appropriate qualitative methods in their research. IST 541 Qualitative Research in Information Sciences and Technology (3) As information and communication technologies (ICTs) have evolved, so too has our understanding of the role of the human contexts within which information technologies are situated. This has led to the need for appropriate methods of studying information systems and technologies in their context of use. There is a growing consensus that qualitative methods offer important research opportunities for this type of study. Therefore, researchers in such fields as the information sciences and technologies, communication technologies and information systems should have an understanding of the various types of qualitative methods so that they can determine ones that are most appropriate for addressing their particular research problems. The course is complementary to quantitative methods courses, in that it addresses problems that are not amenable to those approaches. For example, studies involving very small groups, individuals, societal level concepts and others often lend themselves to qualitative research techniques.This course begins by considering research topics that lend themselves to the choice of qualitative research methods. It then proceeds to examine the steps involved in conducting qualitative research. These include: developing the research question(s); choosing a particular research method (such as ethnography, case study or action research); making decisions about approaches to data collection (such as interview or focus group) and analysis (such as coding technique); and producing and publishing the results.This course explores concrete issues that researchers have encountered in their use of qualitative methods. It does this by drawing upon the collective expertise of distinguished scholars who employ qualitative methods in their own research. The course will examine published work that focuses on research findings as well as that which discusses methodological issues.

Prerequisite: IST 501

IST 543: Foundations of Software Security

3 Credits

This course teaches the principles and practice of software security. The course gives an overview of the foundations of computation models and languages. It then builds on this foundation by teaching students how to address software security issues using fundamental techniques such as type systems and program analysis. The course also covers the practical side of software security, such as memory safety issues including buffer overflow, code injection, and code reuse attacks, as well as some of the latest security problems. Through this course, the students will gain a concrete understanding of principles and practices of software security and be prepared for research on software security related problems.

IST 554: Network Management and Security

3 Credits

Essential skills and knowledge for effectively utilizing networks and Internet technologies to facilitate, manage and secure data communications and applications. IST 554 Network Management and Security (3)Information technology is an integral part of today's organizations and services. As information systems and networks continue to grow and evolve we are becoming more and more dependent, individually and socially, on them to provide support for the economy, military, education and business. Because of this dependence, network-based information and communication systems are attractive targets for those who would compromise information or disrupt services for economic, social or political purposes.

IST 555: Intelligent Agents and Distributed Decision Making

3 Credits

Distributed decision making theories and agent-based technologies, models and systems with applications in command and control, emergency and resource management. IST 555 Intelligent Agents and Distributed Decision Making (3)This course introduces the theory and design of intelligent agents for distributed decision making with applications in grid computing, command and control, emergency management and sensor management. Emphasis will be placed on understanding theories of decision making and using them to model and build relevant agent-based distributed systems for supporting decision making.

IST 557: Data Mining: Techniques and Applications

3 Credits

This course will introduce data mining techniques, including frequent pattern and association rule mining, some basic background on classification and clustering, and applications of data mining techniques in specific domains. The emphasis will be on applications in specific domains rather than fundamental methodologies. IST 557 Data Mining: Techniques and Applications (3) The course will begin with an introduction of data mining field, including why data mining, what is data mining, what kinds of data can be mined, what kinds of patterns can be mined, an overview of technologies, the major issues in data mining, and a brief history of data mining community. The three key lecture topics are: (1) mining frequent patterns and association rules; (2) classification: basic concepts and techniques, and (3) cluster analysis: basic concepts. For topic (1), we will introduce frequent item set mining methods including Apriori and FPGrowth. We will also teach advanced frequent pattern mining methods such as pattern mining in multi-dimensional space, constraint-based frequent pattern mining, mining high-dimensional data, sequential pattern mining, and graph pattern mining. For topic (2), we will teach how to formulate a real-world problem into a classification problem, how to apply classification models on real data and how to analyze the results. The classification models covered in our class include decision tree, random forest, boosting, support vector machine and kernels, naïve bayes classifier, and KNN. Students will learn how to evaluate classification methods using different measures. We will be brief on the fundamental classification methods and will focus more on the applications of such methods on various kinds of data. ;For topic (3), we will cover the clustering topics including partitioning methods, hierarchical methods, density-based methods, grid-based methods and evaluation of clustering results. We will be brief on the fundamental clustering methods and will focus more on the applications of such methods on various kinds of data. Four weeks will be used for lectures on special topics such as text mining, time series mining, spatial data mining, graph mining, image mining, and emerging subjects in data mining. The purpose of the special topics is to help students learn about real-world data mining problems and applying state-of-the-art solutions to them. Instructor will select a few topics based on students' project proposals. Instructor and students will work together on the literature survey and prepare for the presentation. Potential key special topics include: Mining text data. We will introduce basic preprocessing methods such as tokenization, stemming, and stopwords filtering and basic textual features such as tf-idf. We will teach text mining topics including sentiment analysis, topic modeling, and entity extraction. Mining temporal data. We will introduce basic techniques in mining temporal data, such as measuring time series similarity, periodicity analysis, and trend prediction. Mining spatial data. We will introduce basic spatial models, clustering of spatial locations, spatial outliers, co-location patterns, and location prediction. There will be five discussion classes. Instructor will use these classes to talk with individual students and teams, help them with the problems they encounter in assignments and projects, and better personalize the learning experience.

Prerequisite: Programming, Data Structures, Algorithms, Basic Statistics

IST 558: Data Mining II

3 Credits

Advanced data mining techniques: temporal pattern mining, network mining, boosting, discriminative models, generative models, data warehouse, and choosing mining algorithms. IST (STAT) 558 Data Mining II (3)This course is the second course in a two-course sequence on data mining. It emphasizes advanced concepts and techniques for data mining and their application to large-scale data warehouse. Building on the statistical foundations and underpinnings of data mining introduced in Data Mining I , this course covers advanced topics on data mining; mining association rules from large-scale data warehouse, hierarchical clustering, mining patterns from temporal data, semi-supervised learning, active learning and boosting. In addition, to computational aspects of algorithm implementation, the course will also cover architecture and implementation of data warehouse, data preprocessing (including data cleansing), and the choice of mining algorithms for applications. In addition to discriminative models such as CRF and SVM models, the course will also introduce generative models such as Bayesian Net and LDA. A term project will be developed by each student to apply an advanced data mining algorithm to a multi-dimensional data set. Classes will include lectures, paper discussions, and project presentations. Paper discussions will allow students to discuss state-of-the-art literature related to data mining. Project presentations will enable students to share and compare project ideas with each other and to receive feedback from the instructor.

Prerequisite: STAT 557 or IST 557
Cross-listed with: STAT 558

IST 561: Data Mining Driven Design

3 Credits

The study and application of data mining/machine learning (DM/ML) techniques in multidisciplinary design. CSE 561 / EDSGN 561 / IE 561 / IST 561 Data Mining Driven Design (3) This course examines how theoretical data mining/machine learning (DM/ML) algorithms can be employed to solve large-scale, complex design problems. Knowledge Discovery in Databases (KDD) is the umbrella term used to describe the sequential steps involved in capturing and discovering hidden, previously unknown knowledge in large databases. The course begins with foundational information regarding engineering design and provides an overview of KDD and the emergence of the digital age. Students will investigate data acquisition and storage techniques where they will learn the difference between stated and revealed data as related to design. Students will construct their own databases and learn essential techniques in data base queries (SQL) and management. Data transformation techniques, such as binning and dimensionality reduction, will be examined in the data transformation section of the course. This course has a design-driven focus, which will enable students to solve real-life design challenges spanning diverse domains.Students will work on project-based exercises aimed at proposing novel data mining algorithms, or employing existing algorithms to solve design problems in fields relating to engineering, healthcare, financial markets, military systems, to name a few. Data visualization techniques will also be studied to help communicate complex data mining models in a timely and efficient manner.

Cross-listed with: CSE 561, EDSGN 561, IE 561

IST 562: Theoretical Foundations of Information Science

3 Credits

This course introduces the theoretical foundations of information science, with applications in communication, signal processing, machine learning, and pattern recognition. IST 562 Theoretical Foundations of Information Science (3)This course introduces the theoretical foundations of information science, with applications in communication,

signal processing, machine learning, and pattern recognition. Emphases will be placed on theories of communications and compression. Theories of probabilities and inference, learning methodologies, and graph theory.

Prerequisite: Familiarity with college-level linear algebra, calculus, and probability theory or consent of the instructor

IST 564: Crisis, Disaster and Risk Management

3 Credits

This course examines the fundamental elements of crisis, disaster, risk and emergency management.

IST 590: Colloquium

1-3 Credits/Maximum of 3

Continuing seminars that consist of a series of individual lectures by faculty, students, or outside speakers.

IST 594: Research Topics

1-18 Credits/Maximum of 18

Supervised student activities on research projects identified on an indivdual or small group basis.

IST 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

IST 597: Special Topics

1-9 Credits/Maximum of 999

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

IST 600: Thesis Research

1-15 Credits/Maximum of 999

No description.

IST 601: Ph.D. Dissertation Full-Time

0 Credits/Maximum of 999

No description.

IST 602: Supervised Experience in College Teaching

1-3 Credits/Maximum of 6

No description.

IST 610: Thesis Research Off-Campus

1-15 Credits/Maximum of 999

No description.

IST 611: Ph.D. Dissertation Part-Time

0 Credits/Maximum of 999

No description.

IST 815: Foundations of Information Security and Assurance

3 Credits

This course provides theoretical and applied foundations of information security and assurance. IST 815 Foundations of Information Security and Assurance (3) IST 815 provides theoretical and applied foundations of information security and assurance, with an emphasis on access control, information security governance and risk management, cryptography, security architecture and design, software security, business continuity and disaster recovery planning, network security, physical security, operations security, laws, regulations, investigations, and compliance.

IST 816: Web Fundamentals

3 Credits

The growth and use of the web is increasing at a remarkable rate. The web is a huge evolving system with data full of uncertainties and has become a critical part of everyday life of modern societies. This course will cover fundamental techniques used in building and maintaining the web. The focus will be on the practical aspect of the web's backbone techniques. Topics to be covered include: basic web and internet technologies, modern applications based on the web techniques, and an integrated presentation of theory, examples, exercises, and applications.

IST 820: Cybersecurity Analytics

3 Credits

IST 820 provides theoretical and applied foundations of fundamentals of network security, data sources, data collection techniques and tools, cybersecurity analytics infrastructure, machine learning and data mining, network forensics, anomaly and malware detection, security data visualization, and security dashboard design and implementation.

IST 836: Healthcare Informatics

3 Credits

This course provides a foundation in information systems and technology for improvement of healthcare.

Cross-listed with: NURS 836

IST 841: Search Engines & Information Retrieval

3 Credits

Introductory course on search engines and information retrieval. Search, indexing, ranking, and search evaluation are formally defined, explained, and used. IST 841 Search Engines & Information Retrieval (3) This is introductory course on the principles of information storage and retrieval systems and databases. Students will learn how effective information search and retrieval is interrelated with the organization and description of information to be retrieved. Students will also learn to use a set of open source tools and procedures for organizing information, will become familiar with the techniques involved in conducting effective searches of print and online information resources and will build a vertical/specialty

search engine. Search, indexing, ranking, and search evaluation are formally defined, explained and used.

IST 852: Knowledge Management

3 Credits/Maximum of 999

This course provides a foundation in knowledge management concepts and paradigms, emphasizing computational methodologies and tools for supporting data and knowledge management practices.

IST 868: Topics in Visual Analytics for Security Intelligence

3 Credits

Introduce visual analytic techniques for security informatics and intelligence. Survey technical approaches for data analysis, threats and vulnerability, communicating risk. I ST 868 Topics in Visual Analytics for Security Intelligence (3) This course surveys techniques for visualizing and analyzing security and risk information and for communicating threats, risk and vulnerability to decision-makers. Students will be motivated by the needs for better intelligence in a broad range of applications such as homeland security, crisis management, and public safety. Through case studies and problem-based learning, students will develop understanding of important concepts and issues, such as data source and data quality, visual thinking associations and integration of incidence, hazards, and risk factors, and the difficulties of analyzing and communicating knowledge. Various visual analytical methods for homeland security intelligence will be discussed, such as: (1) mapping and visualizing patterns of crime and incidence, (2) identifying targets and agents of terrorist attacks, (3) spatial analysis of social, economic and environmental risk indicators, and (4) prediction of threat and risk. It also pays special attention o the interpretation of analytical results for actions. Geographical information systems and associated spatial analytical tools will be used to exemplify the kinds of information environment available to intelligence community. The course will prepare students to become immediate workforce for security-related industries and government agencies.

Prerequisite: IST 816 or IST 554 or IST 562

IST 885: Introduction to Multisensor Data Fusion

3 Credits

Understanding the concepts, techniques, and issues surrounding the fusion of information from multiple sensors and sources of data. IST 885 Introduction to Multisensor Data Fusion (3)Rapid advances in nano and micro-scale sensors, ubiquitous wide-band wireless communications and improvements in computing provide the opportunity to collect and disseminate huge amounts of data and information from sensors, humans acting as observers, and emerging data available on the web. Applications for this data are widespread and include areas such as geospatial intelligence, emergency management, environmental monitoring, epidemiology, and others. This course introduces methods and process models for fusion of the information from diverse sources to achieve inferences that cannot be obtained by using a single source or sensor. Course Objectives: IST 885 provides an introduction to multisensor information fusion. Multisensor information fusion seeks to combine information from multiple sensors and sources to achieve inferences that are not feasible from a single sensor or source. the proliferation of micro and nano-scale sensors, wireless communication, and ubiquitous computing enables the assembly of information from sensors, models, and human input for a wide variety of applications such as environmental monitoring, crisis management, medical diagnosis, monitoring and control of manufacturing processes. Techniques for fusing multisensor and multi-source information are drawn from a variety of disciplines including statistics, data mining, artificial intelligence, estimation and control theory, pattern recognition, and signal and image processing. While this course is non-mathemathical it will help students understand the concepts, techniques and issues associated with developing and using multisensor data fusion systems. At the end of this course students should be able to: * Explain different models of multisensor data fusion and describe the advantages and limitations of data fusion * Explain the five levels of data fusion in the Joint Directors of Laboratories (JDL) data fusion process model * Assess and characterize a sample information fusion application * Identify various techniques used in multisensor data fusion and indicate the applicability and limitations of the techniques for a selected application * Design a data fusion system including specifying the required functions, applicable techniques, selection/assessment of sensors and information sources, and design of a sample user interface * Discuss current technology trends that affect the implementation of a fusion system. Student activities: The course consists of ten lessons and one capstone group project that will span either the 15-week semester or the combined 12-week summer session. Each lesson will require approximately 8 hours of student activity. Student activities will include reading lesson text, online quizzes, and discussions about the way in which multisensor information fusion is applied to selected applications such as geospatial intelligence, environmental monitoring, monitoring of complex systems, crisis management or related areas.

IST 888: Mobile Computing and Applications

3 Credits

design and development of mobile computing-based applications and services utilizing current and emerging mobile computing technologies. The purpose of this course is to provide students with an advanced and hands-on exploration of mobile computing paradigms. Mobile computing addresses the mobility needs of business operations and management in organizations, with the increasing trend of leveraging a variety of deployed enterprise information systems. Hence, well-designed and developed mobile applications can meet the needs of business mobility on both the service provider and the customer sides. This course is designed to explore and discuss approaches to the design and development of mobile applications. It builds an awareness of the business need for operational agility and mobility, and the value of existing IT investments in organizations. Specifically, this course investigates the fundamental design and development of mobile applications and services using platform technologies; area topics include mobile application and services design patterns, user interface, animation, location & mapping, and integration. Through working on exercises, labs, and projects, students will be able to identify and apply appropriate mobile platform technologies in their assignments and will gain skills and coding experience in the development of adaptable and sustainable mobile application solutions. Consequently, with this course, students will learn mobile development environments, application and service design and development, device emulators, data and mobility management, and enterprise solution-based integration. Cross Listings: IST 888 will be added as a cross-listed course.

Cross-listed with: SWENG 888