

## ICT Information Communication Technology

### **#ICT 114 COMPOSITION AND COMMUNICATION IN THE DIGITAL AGE I. (3)**

Composition and Communication in the Digital Age I is the introductory course in a two-course sequence designed to engage STEAM students in composing and communicating ideas using speech, writing, visuals, and technology. This course will focus on equipping students to (1) translate complex, technical information into comprehensible terms, (2) utilize research skills to collect and evaluate information, and (3) employ written, oral, and technical elements as both independent and interconnected forms of communication.

### **\*ICT 115 COMPOSITION AND COMMUNICATION IN THE DIGITAL AGE II. (3)**

Communication for the Digital Age focuses on improving students' oral, written, and visual communication skills so they can effectively form and translate technical information in ways that are easily understood by public audiences. In this course, students will both analyze and create materials designed to inform and persuade professionals in fields related to information communication technology. Students will also work individually and in groups to research, create, and present an argument focused on improving the communication of technical information. They will explore issues that align with their professional interests and produce products that use multiple methods (oral, written, or digital) to make an argument. A significant component of the class will involve learning to use visual and digital resources to enhance written and oral presentations. Prereq: CIS 110/WRD 110 or equivalent.

### **ICT 150 EXPERIENCE ICT. (3)**

Through the exploration of social and technological theories related to Information Communication Technology and the evolution and current applications of ICT, students will gain a better understanding of how emerging technologies have led to the need and development of ICT as a discipline; its shared commonalities with other disciplines; its distinct characteristics; its applications in the workplace and personal contexts; and its impact and future implications on individuals, organizations, and societies.

### **ICT 200 INFORMATION LITERACY AND CRITICAL THINKING. (3)**

This course provides an introduction to the concepts and practices of information literacy. It explores how to effectively and ethically find, evaluate, analyze, and use information resources in academic and everyday-life situations. Emphasizing critical inquiry and critical thinking, this course will explore the theories and definitions surrounding the term "information literacy." Students will put this theory into practice by developing problem-solving skills that allow them to meet information needs throughout their lifetimes. Students will gain a better understanding of how information and knowledge function in society and will discover methods of finding, accessing, evaluating, and using different information sources in an effective and ethical manner. (Same as IS 200.)

### **ICT 201 PERSONAL KNOWLEDGE MANAGEMENT. (3)**

Gain knowledge about information sources, information retrieval and professional information management. Learn how information sources are described, organized, and disseminated using metadata standards and publishing practices. Acquire the skills to locate and retrieve quality sources of information with search engines and databases. Implement knowledge management technologies and apply an understanding of social factors in order to create efficient and usable organizational work flows. (Same as IS 201.)

### **ICT 202 TECHNOLOGIES FOR INFORMATION SERVICES. (3)**

This course is designed to teach the fundamental concepts of information technology in ways relevant to professional practice in informatics and the information professions. It explores applications of computers and networks to information problems. Included are features of hardware, types of software, commercial systems and search engines. (Same as IS 202.)

### **ICT 205 ISSUES IN INFORMATION AND COMMUNICATION TECHNOLOGY POLICY. (3)**

This course introduces students to the legal, political, and ethical issues confronting today's information professionals and the subsequent impact of these issues on information and communication technology (ICT) policy and law development. The rapidly evolving ICT infrastructure and the global shift to an information society will provide the context for the course. Emphasis will be placed on: organizational policy development, information ethics, computer ethics, freedom of speech and expression online, information filtering, intellectual property, cyber law, and pertinent legal and political acts related to the present information and communication infrastructure.

### **ICT 300 ICT IN SOCIETY. (3)**

This course studies the impacts of information and communication technology (ICT) on individuals and society. It examines current issues related to the flow of information in society, including the impact of technology and the development of the information economy. The role of the information profession within the context of information society issues is also explored. This course is a Graduation Composition and Communication Requirement (GCCCR) course in certain programs, and hence is not likely to be eligible for automatic transfer credit to UK.

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### **ICT 301 INTRODUCTION TO DATABASES. (3)**

This course is intended to give students a solid background in databases, with a focus on relational database management systems. Topics include data modeling, database design theory, data definition and manipulation languages, storage and indexing techniques, query processing and optimization, and database programming interfaces.

### **ICT 302 CONTENT MANAGEMENT SYSTEMS. (3)**

The course focuses on the practice and theory of designing, building and maintaining content management systems.

### **ICT 303 SYSTEMS ANALYSIS. (3)**

This course examines and applies the principles of information systems analysis. It surveys project management, feasibility and analysis, systems requirement definition and resource allocation. It utilizes a structured systems development methodology that spans the entirety of the information system lifecycle, which starts with the conception of the need for a specific information system and ends with the implementation of that system. The course utilizes a case study approach in which students initiate the analysis and logical design of a limited-scope information system. Prereq: IS 202. (Same as IS 303.)

### **ICT 305 DATA DETECTIVES. (3)**

In today's 24-7 culture, every choice we make comes with more data about which product/service/area is the "best" on a number of factors. The challenge, then, is sorting through the data to make an informed decision. In this course, you will be presented with several "real life" scenarios and then asked to use data to construct an appropriate written or oral response. Whether as information consumers or as information professionals, sorting through the data and making a decision that can be articulated to people unfamiliar with the issue is a key indicator of information literacy. Given that this course fulfills your Graduation Composition and Communication requirement for Information Studies, you will be asked to write and revise several short pieces and complete one digital presentation.

### **ICT 307 COPYRIGHT. (3)**

In the age of digital information, the technology, economics, and law of intellectual property are constantly in flux. In order to continue to effectively provide access to information, ICT professionals need to play a role in managing these changes. This introductory course examines the basic conceptual elements of copyright protection, and its adaptation and application to new media and information communication technologies.

### **ICT 310 EXPLORING AND ANALYZING ICTs: METHODOLOGICAL APPROACHES. (3)**

Information and Communication Technologies (ICTs) are pervasive in our increasingly global society and, importantly, have the potential to improve lives and society. This course is designed to provide you with a sophisticated understanding of the philosophy, theory, design, and analysis of both qualitative and quantitative research in communication. During this course you will be exposed to a variety of methodological designs and analyses. Using a variety of methods ranging from the foundational (e.g., interviews, surveys) to cutting edge (e.g., big data analysis, geospatial mapping) and readings from a variety of contexts (e.g., education, healthcare, risk and crisis), this course is designed to equip you with the research and methodological tools to understand how ICTs affect individuals, relationships, groups, organizations, social movements, and policies and to use these methodological tools in applied settings.

### **ICT 311 INTRODUCTION TO INFORMATION SCIENCE. (3)**

This course introduces theoretical and foundational concepts in information science and situates information in various contexts through which it has been circulated, conceptualized, and used. Students will learn fundamental approaches to understanding relationships across technology, people, and society. Emphases include technologies, classification, information transfer, format, use, and definitions of information and "information age."

### **ICT 315 HUMAN RELATIONS AND TECHNOLOGY. (3)**

With so many new technologies in use today, information can often fail to effectively reach those who need it. In this course, students will focus on the importance of taking a human-centered approach to best identify and meet individuals' and groups' information needs. Human Relations and Technology focuses on engaging critical thinking skills to effectively tailor and disseminate information to people both within and outside of the IT industry. Through analysis and design, students will be asked to address multiple real-world situations with a specific focus on connecting to humans through (and often in spite of) technology.

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### **ICT 316 UNIVERSAL ACCESS: INFORMATION AND WORKING ENVIRONMENTS. (3)**

Universal design is a holistic concept that can be applied to everything from computer software to electronics to dishes. It is the idea that accessibility and usability standards should be blended together to create information that anyone can access. More specifically, web accessibility refers to the inclusive practice of removing barriers that prevent interaction with, or access to information on websites. When websites are correctly designed, developed and edited, all users have equal access to information and functionality. The focus of the course is how web accessibility can be implemented successfully in working environments by creating digital resources online that all consumers can use. In this course, you will learn how information must be presented that is flexible and adaptive to different users' needs or preferences, accessible through a variety of different technologies and why it is easier and more cost-effective to design website and social media content correctly the first time than re-designing it later. Students will compare and contrast accessible and inaccessible websites and social media and also perform a web accessibility audit for an actual business.

### **ICT 320 INFORMATION ARCHITECTURE. (3)**

This course is an introduction to Information Architecture (IA), an area concerned with the design, evaluation, and implementation of interactive Web systems in terms of organization, labeling, navigation, and search. It aims to acquaint students with principles and processes of information architecture for User-centered design of Web systems such as websites and mobile applications. It also provides students the opportunity to develop practical skills related to the design of information organization and navigation systems. The course prepares for the companion technical course of "content management systems" where they will apply the theories and techniques studied in this course to the implementation for a fully functional website.

### **ICT 325 MULTIMEDIA AND TECHNOLOGY. (3)**

This course is designed to engage students with the deployment of multimedia within contemporary interactive technologies, including their historical and cultural contexts, using platforms, visual cultures, sociocultural dynamics, and technical components. The objective of this course is to help students cultivate conceptual tools that are of practical relevance that can be used while creating and engaging with multimedia tools, platforms, and artifacts both in their professional and personal lives. To this extent, the readings are carefully chosen to introduce foundational concepts of new media (Unit 1), associate and apply these concepts in their daily lives (Unit 2), and critically think about some of the broader implications of new media (Unit 3). The assignments are designed to cultivate critical analytical thinking by helping students apply the insights to day-to-day examples. Students are also required to complete two multimedia tool workshops as part of their curriculum in order to gain practical skills.

### **ICT 326 ELECTRONIC INFORMATION RESOURCES FOR HEALTH PROFESSIONALS. (3)**

This course is a survey of electronic information resources for health professionals, including databases and Web resources, but with a focus on MEDLINE. Discussion of relevant controlled vocabularies, their use in formulating and executing search strategies, and alternative interfaces to MEDLINE are addressed. The course also includes reference management software, an evidence based health care component, and discussion of systematic reviews. Prereq: STA 210 or equivalent. (Same as IS 326.)

### **ICT 327 CONSUMER HEALTH INFORMATION SEEKING. (3)**

This course will provide students with a foundation in the history and development of consumer health information seeking in addition to practical experience in locating, evaluating, and providing health information to diverse and special populations within educational and healthcare settings. Students will gain an understanding of the lifecycle of consumer health information – from policy development, to creation, to dissemination, and use – and the role of healthcare professionals in providing that information. Current issues and trends, as well as future directions in consumer health information provision and health information seeking will be discussed. (Same as IS 327.)

### **ICT 351 TECHNOLOGY SECURITY. (3)**

An introduction to the various technical and administrative aspects of information security and assurance. This course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system with appropriate intrusion detection and reporting features.

### **ICT 390 SPECIAL TOPICS IN ICT. (3)**

Intensive study of one aspect of information communication technology under the leadership of an authority in the area.

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### **ICT 395 INDEPENDENT STUDY IN INFORMATION COMMUNICATION TECHNOLOGY. (3)**

Opportunities for directed study in subjects or problems of interest to a student. Observation and research required, and a written report describing the work accomplished. Prereq: Consent of instructor and approval of proposal.

### **\*ICT 406 INTERNET AND E-COMMERCE REGULATION. (3)**

The Internet and related information and communication technologies have had a dramatic impact on business, commercial transactions, communication, and the control of information. Business and commercial transactions conducted via electronic means are subject to complex legislation and regulation that changes frequently. This course provides an overview of the legal and regulatory frameworks governing commercial activities conducted via the Internet (or “e-commerce”), covering topics such as electronic contracts, domain names, intellectual property (including the liability of user-generated content platforms and online intermediaries), free speech (and intermediary liability for harmful speech), privacy, and other relevant standards, ethical considerations, protocols to ensure consumer protection, and emergent issues relating to compliance and enforcement.

### **ICT 410 PRIVACY. (3)**

As new information and communication technologies are developed, they increasingly raise concerns about the collection, use, storage, and sharing of personally identifiable information. This course provides an overview of privacy, privacy laws, privacy-related technologies, and self-regulatory efforts to mitigate potential privacy risks. The study of privacy will be approached from philosophical, historical, legal, policy, and technical perspectives.

### **ICT 415 TECHNOLOGY TRAINING AND INSTRUCTIONAL STRATEGIES. (3)**

Using technology in workplace settings requires an understanding of the relevant instructional strategies as well as an understanding of how technology supports learning in a specific IT context. In this course, students will gain a better awareness of what is needed to develop instructional experiences for adult populations. Students will explore how to use specific instructional strategies to learn, assess, and develop content to meet the needs of organizations seeking to train those in the workforce. Prereq: ICT 315 Human Relations in IT.

### **#ICT 418 LINUX SYSTEMS ADMINISTRATION. (3)**

Systems administrators install, maintain, and manage computer systems and servers that support small and large networks. We will learn how to administer these computer systems and servers with the Linux operating system. In the process, students will know how to install software, implement security policies, manage users, configure networks, evaluate logs, and automate processes. Prereq: ICT 301 Introduction to Databases.

### **\*ICT 420 SEMANTIC WEB DEVELOPMENT. (3)**

This course introduces students to web development with the goal of designing a website containing structured and semantic data that adheres to principles of usability, accessibility, and inclusion. By the end of this course, students will acquire skills at planning, developing, organizing, and managing websites in HTML5 and CSS3 and will develop an understanding of basic design principles and project management. Prereq: ICT 320 Information Architecture.

### **ICT 550 SECURITY INFORMATICS. (3)**

This course introduces students to policy concerns relating to security informatics, and highlights theoretical and practical approaches to designing secure information and communication technology (ICT) systems. It addresses key issues such as authentication, risk analysis, access control, database and network security, and information assurance.

### **ICT 552 CYBERCRIME AND DIGITAL LAW ENFORCEMENT. (3)**

The global reach of the Internet, the low marginal cost of online activity, and the relative anonymity of users have contributed to a wide escalation in cybercrimes. Consequently, information and communications technologies (ICT) are being increasingly employed to instigate threats to global civil society. This course provides an overview of cybercrime and the digital law enforcement practices put in place to respond to them. The course will focus on the types and extent of current cybercrimes, how the justice system responds to these crimes, the various constitutional protections afforded to computer users, the law and policies that govern cybercrime detection and prosecution, and related technologies.

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### **ICT 596 INTERNSHIP IN ITC. (3)**

Provides students with supervised work-and-learning experience in a professional environment under the direction of a University faculty member and an employee of a participating firm. One hundred forty four (144) hours of student time are expected during the semester. Enrollment is contingent upon the availability of internships. Students are selected on the basis of personal qualifications, including GPA, courses taken, recommendations, and an interview.

### **ICT 600 INFORMATION COMMUNICATION TECHNOLOGY IN SOCIETY. (3)**

We live in a world of rapid technological innovation. This innovation has allowed significant changes in the ways that we communicate and interact with forms of media. In fact, the technologies related to communication have created a culture surrounding how we see, hear, read and use information, and have significantly impacted politics, economics, policy, etc. This course studies the impacts of information and communication technology (ICT) on individuals and society, and the impact that society has on ICTs. It examines current issues related to the diffusion of new technologies in society as well as the obstacles to widespread use of individual ICTs. Students in this course will analyze the various theories related to the use of emerging communications forms, and consider the factors related to successful ICT deployment. Students will be required to look beyond “good/bad” classification of new communication technology, and conduct in-depth interrogations of ICTs, the issues that surround them and the environments in which ICTs are used.

### **ICT 601 INFORMATION SEEKING. (3)**

This course provides an overview of the theory and practices of human information seeking behavior, including both basic models to understand user behavior, and techniques to effectively select, locate, evaluate, and use information to meet diverse information needs and facilitate human-computer interaction.

### **#ICT 605 INTRODUCTION TO HUMAN COMPUTER INTERACTION. (3)**

Human computer interaction (HCI) is an interdisciplinary field in which computer scientists, engineers, psychologists, social scientists, and design professionals play important roles. The goal of HCI is to solve real problems in the design and use of technology, making computer-based systems easier to use and more effective for people and organizations. Ease of use and effectiveness are critical to the success of any systems that interact with people, including software systems, home, office and factory appliances, and web and phone applications. This course provides an overview and introduction to the field of human-computer interaction, with a focus on how it applies to managers, technology executives, and others who will work with HCI professionals. Particular emphasis will be placed on what HCI methods and HCI-trained specialists can bring to design and development teams. The course will introduce students to proven tools and techniques for creating and improving user interfaces, such as Participatory Design, HCI for Development, Contextual Inquiry, and Think-Aloud User Testing. Students at the end of the course will have learned some useful techniques and an understanding of systematic procedures for creating usable and useful designs and systems.

### **ICT 610 ICT RESEARCH METHODS. (3)**

Information and Communication Technologies (ICTs) are pervasive in our increasingly global society and, importantly, have the potential to improve lives and society. This course is designed to provide you with a sophisticated understanding of the philosophy, theory, design, and analysis of both qualitative and quantitative research in communication. During this course you will be exposed to a variety of methodological designs and statistical procedures to allow you to complete your own research projects during your time as a graduate student here at the University of Kentucky. Using a variety of methods ranging from the foundational (e.g., interviews, surveys) to cutting edge (e.g., big data analysis, geospatial mapping) and readings from a variety of contexts (e.g., education, healthcare, risk and crisis), this course is designed to equip you with the research and methodological tools to understand how ICTs affect individuals, relationships, groups, organizations, social movements, and policies and to use these methodological tools in applied settings.

### **ICT 626 ELECTRONIC INFORMATION RESOURCES IN THE HEALTH SCIENCES. (3)**

Survey of electronic information resources in the health sciences, including databases and Web sources. Discussion of relevant controlled vocabularies and their use in formulating and executing search strategies. The course also includes an evidence based health care component whereby students learn to analyze critically the biomedical literature and determine reference and research relevancy. (Same as LIS 626.)

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### **ICT 627 CONSUMER HEALTH INFORMATION RESOURCES. (3)**

History and development of consumer health information resources; role of professional and governmental agencies in provision of consumer health information; policy issues related to provision of consumer health information. Consumer health professional literature, user information needs, user resources, and information services. Identification, selection, utilization, and evaluation of consumer health information for special populations within specialized educational and healthcare settings. Trends and issues in consumer health informatics. (Same as LIS 627.)

### **ICT 630 INFORMATION RETRIEVAL. (3)**

This course reviews important information retrieval (IR) theories and models; explores a brief history of IR research; and examines various IR applications. Students will get familiar with IR foundations such as document indexing or query expansion/optimization strategies, as well as understand overall system architectures for selected IR applications. Students will explore how to analyze and compare IR systems, how to select the best IR systems for particular tasks and how to design a prototype for an efficient IR system. Prereq or concur: LIS 636 or LIS 637 or LIS 638. (Same as LIS 630.)

### **ICT 636 INTRODUCTION TO COMPUTER INFORMATION SYSTEMS. (3)**

A broad introduction to the use of computers as tools for creativity, communications, organizing information, and problem-solving. The basic concepts of computer hardware, software, networking, and the Internet are covered. Students also will be introduced to basic techniques for designing and creating a web site.

### **ICT 638 ADVANCED WEB DESIGN. (3)**

This course serves as a hands-on introduction to advanced web design techniques. Topics include the web development process, creating dynamic content, advanced layout and design, client-side and server-side scripting languages, graphic file types and optimization, web forms, multimedia, and web servers and databases. Prereq: ICT 636, or consent of instructor.

### **ICT 640 HEALTH INFORMATION RESOURCE SERVICES. (3)**

A survey of information agencies and health science libraries, including topics related to: the healthcare community and their information needs, information resources in the health sciences, controlled medical terminologies and classification systems, search and retrieval of information resources, issues in the management of collections and access to health libraries. (Same as CI/LIS 640.)

### **ICT 650 INTRODUCTION TO LEADERSHIP IN INFORMATION PROFESSIONS. (3)**

The primary purpose of this course is to expose students to leadership strategies and challenges in the information professions. Primary attention is placed on: 1) the role of communication in effective leadership; 2) innovation and change in the information professions and the leadership styles available for addressing such changes; 3) ethical frameworks in communication leadership; 4) issues management and organizational planning; and 5) leadership communication strategies for managing conflict and crises. Prereq: Graduate student status in the ICT, LIS, or CJT graduate programs.

### **ICT 651 TECHNOLOGY SECURITY. (3)**

An introduction to information security including vocabulary and terminology, threats to information systems, cryptology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. It is expected that each student will possess some knowledge of programming, operating systems, and networking, although advanced knowledge in those areas is not necessary.

### **ICT 658 KNOWLEDGE MANAGEMENT. (3)**

Organizational knowledge is a valuable strategic asset. Knowledge management refers to the systematic management of an organization's knowledge assets so that they can be leveraged for sustainable advantage. This course examines how knowledge is created, captured, organized, diffused, and implemented in an organization. Topics covered include knowledge management processes and practices, corresponding technologies, collaboration tools, and people and cultural issues. (Same as LIS 658.)

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**ICT 661 INTRODUCTION TO DATA SCIENCE. (3)**

This course will provide a foundation in the area of data science based on data curation and statistical analysis. The primary goal of this course is for students to learn data analysis concepts and techniques that facilitate making decisions from a rich data set. Students will investigate data concepts, metadata creation and interpretation, general linear method, cluster analysis, and basics of information visualization. At the beginning, this course will introduce fundamentals about data and data standards and methods for organizing, curating, and preserving data for reuse. Then, we will focus on the inferential statistics: drawing conclusions and making decisions from data. This course will help students understand how to use data analysis tools, and especially, provide an opportunity to utilize an open source data analysis tool, R, for data manipulation, analysis, and visualization. Finally, in this course we will discuss diverse issues around data including technologies, behaviors, organizations, policies, and society. (Same as LIS 661.)

**#ICT 662 DATA ANALYSIS AND VISUALIZATION. (3)**

This course examines three major categories of topics in relation to data analysis and visualization. First, this course will cover the basic ways that data can be obtained from various sources, such as raw text files, web APIs, and data repositories. It will also cover the techniques of data cleaning and how to organize data for analysis. Second, the course will cover the essential techniques for analyzing quantitative data. It will teach prediction and clustering methods that are useful to solve various real data analysis tasks. In addition, students will learn major theories and recent methods in text analysis. Third, this course teaches how to create visualizations that effectively communicate the meanings behind data and information. The course will cover key practical skills in information visualization, such as plotting, mapping, and network visualization. This course will not be mathematically intensive. Instead, the course will use existing computational tools and programming libraries to solve various problems. You will use the R language and environment intensively for data analysis and visualization. (Same as LIS 662.)

**ICT 690 SPECIAL TOPICS IN LIBRARY AND INFORMATION SCIENCE. (3)**

Intensive study of one aspect of library and information science under the leadership of an authority in the area. (Same as LIS 690.)

**ICT 695 INDEPENDENT STUDY IN INFORMATION COMMUNICATION TECHNOLOGY. (3)**

Opportunities for directed study in subjects or problems of interest to a student. Observation and research required, and a written report describing the work accomplished. Prereq: Consent of instructor and approval of proposal.