Fall 2024

Computer Science Information Systems - AS		*Course to Program Map*					
Program Outcomes: Upon completion of the program, graduates will be able to…	**Institutional Skills**	**apply appropriate knowledge of computing and mathematics**	**analyze a problem, and identify and define the appropriate computing requirements**	**design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs**	**demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities**	**communicate effectively with a range of audiences**	**use current techniques, skills, and tools necessary for computing practice**
Courses							
CSCI 101 - Introduction to Management Information Systems	15	I	I	I	IRMA	IR	I
CSCI 102 - Introduction to Programming	3	IRMA	IRMA	IRMA			IRMA
CSCI 107 - Advanced Programming	3	IRMA	IRMA	IRMA			IRMA
CSCI 110 - Intro to Computer Concepts and Applications	15	IRA	I	I	I	I	IRA
CSCI 125 - IT Essentials: Hardware (A+)	3	IRMA	IR	IR			IRMA
CSCI 126 - IT Essentials: Software (A+)	3	IRMA	IR	IR			IRMA
CSCI 130 - Introduction to Cybersecurity	1235	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 140 - Overview of Computer Science	12345	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 150 - Network Essentials (Network+)	3	IR	IRMA	IRMA			IRMA
CSCI 190 - Computer Ethics	12345				IRMA	IR	
CSCI 230 - Security Essentials (Security+)	1235	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 262 - Project Management	12345	IR		IR	IRMA	IRMA	IR
CSCI 290 - Data Analytics (Data+)	12345	IR	IRMA	IRMA	IR	IR	IRMA

Mapping	
I	Introduced
R	Reinforced
M	Mastered
A	Assessed/Artifact

Essential Skills	
1	written communication
2	oral communication
3	critical thinking
4	cultural diversity
5	social responsibility

Employability Skills	
C	communication
P	problem solving
W	work ethic

CSCI 101 - Introduction to Management Information Systems	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
describe the major components of an information system.	I	I	I			I
describe how information systems and technologies are used.	I	I	I			I
describe the components of a computer system.	I	I	I			I
describe the process of writing a computer program.	I	I	I			I
describe how data is stored.	I	I	I			I
describe networks and how the Internet works.	I	I	I			I
describe how to secure a computer from malware.	I	I	I	IRMA	IR	I
discuss ethical dilemmas that arise in modern computing.	I	I	I	IRMA	IR	I

CSCI 102 - Introduction to Programming	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
identify and describe general computer and programming topics such as operating systems, networking, databases, algorithms, control structures, data types, data storage, files and arrays.	**IR**	**IR**	**IR**			**IR**
demonstrate structured programming principles, such as top-down modular design and proper program documentation and style	**IRMA**	**IRMA**	**IRMA**			**IRMA**
demonstrate the use of certain basic tools and algorithms, such as data validation, defensive programming, calculating sums and averages, and searching and sorting lists	**IRMA**	**IRMA**	**IRMA**			**IRMA**
describe and articulate other programming paradigms, such as object-oriented and event-driven programming.	**IR**	**IR**	**IR**			**IR**

CSCI 107 - Advanced Programming	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
demonstrate an understanding of file structure, creation and management	**IRMA**	**IRMA**	**IRMA**			**IRMA**
demonstrate an understanding of logic methods of data file use.	**IR**	**IR**	**IR**			**IR**
demonstrate the ability to use utility programs	**IR**	**IR**	**IR**			**IR**
demonstrate an understanding of various file types within a specific language	**IR**	**IR**	**IR**			**IR**

CSCI 110 - Intro to Computer Concepts and Applications	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
identify the specifications and configurations of computer hardware.	I					
identify the role of an operating system.	I					
use the Internet to find information and determine its credibility.	I	I				
use word processing software to create, edit, and produce professional documents.	IRA	I	I		I	IRA
create spreadsheets and charts for problem-solving.	IRA	I	I		I	IRA
utilize a database.	I	I	I			I
use presentation software to create, edit, and produce professional presentations.	IRA	I	I		I	IRA
identify the ethical and social standards of conduct regarding the use of information and technology.	I			I		
identify security threats and solutions.	I			I		

CSCI 125 - IT Essentials: Hardware (A+)	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
illustrate the installation, configuration and troubleshooting of current operating systems.	**IRMA**	**IR**	**IR**			**IRMA**
identify basic computer components.	**IRMA**	**IR**	**IR**			**IRMA**
identify, install and troubleshoot computer processors.	**IRMA**	**IR**	**IR**			**IRMA**
identify, install and troubleshoot memory.	**IRMA**	**IR**	**IR**			**IRMA**
identify, install and troubleshoot peripherals.	**IR**	**IR**	**IR**			**IR**
identify, install and troubleshoot video components.	**IR**	**IR**	**IR**			**IR**
identify, install and troubleshoot storage media.	**IR**	**IR**	**IR**			**IR**
identify, install and troubleshoot input and output ports and cables.	**IR**	**IR**	**IR**			**IR**
identify, install and troubleshoot printers.	**IR**	**IR**	**IR**			**IR**
identify, install, troubleshoot and configure basic networks and components.	**IR**	**IR**	**IR**			**IR**

CSCI 126 - IT Essentials: Software (A+)	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
illustrate the installation, configuration and troubleshooting of current operating systems.	**IRMA**	**IR**	**IR**			**IRMA**
compare and contrast the features and requirements of various Microsoft Operating Systems.	**IRMA**	**IR**	**IR**			**IRMA**
demonstrate use of networking, OS and recovery console command line tools.	**IRMA**	**IR**	**IR**			**IRMA**
configure and troubleshoot a network client/desktop device.	**IRMA**	**IR**	**IR**			**IRMA**
perform preventative maintenance procedures.	**IR**	**IR**	**IR**			**IR**
demonstrate use of basic network, OS and data security.	**IR**	**IR**	**IR**			**IR**
identify and integrate mobile devices.	**IR**	**IR**	**IR**			**IR**
demonstrate common troubleshooting methods.	**IR**	**IR**	**IR**			**IR**

CSCI 130 - Introduction to Cybersecurity	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or program to meet	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
describe the importance of cybersecurity.	IRMA	IR	IR	IRMA	IRMA	IR
discuss access control models.	IRMA	IR	IR	IRMA	IRMA	IR
explain cryptographic concepts.	IRMA	IR	IR	IRMA	IRMA	IR
design the protections to ensure physical security.	IRMA	IR	IR	IRMA	IRMA	IR
explain the role of authentication technologies.	IRMA	IR	IR	IRMA	IRMA	IR
distinguish physical intrusion, process security, memory and file system security issues.	IRMA	IR	IR	IRMA	IRMA	IR
discuss application program security.	IRMA	IR	IR	IRMA	IRMA	IR
examine the threat of insider attacks, viruses, malware and privacy invasive software.	IRMA	IR	IR	IRMA	IRMA	IR
discuss network security concepts.	IRMA	IR	IR	IRMA	IRMA	IR
define denial-of-service attacks and discuss their potential impact.	IRMA	IR	IR	IRMA	IRMA	IR
describe the application layer and DNS.	IRMA	IR	IR	IRMA	IRMA	IR
explain the role of firewalls and tunneling.	IRMA	IR	IR	IRMA	IRMA	IR
discuss intrusion detection and attacks on clients and servers.	IRMA	IR	IR	IRMA	IRMA	IR
explain how digital signatures work.	IRMA	IR	IR	IRMA	IRMA	IR
discuss the role of security standards and evaluation.	IRMA	IR	IR	IRMA	IRMA	IR
design a software vulnerability assessment.	IRMA	IR	IR	IRMA	IRMA	IR

CSCI 140 - Overview of Computer Science	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or program to meet	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
define algorithms and give historical examples.	IRMA	IR	IR	IRMA	IRMA	IR
discuss programming and how programs are constructed.	IRMA	IR	IR	IRMA	IRMA	IR
define data storage and describe how data is stored.	IRMA	IR	IR	IRMA	IRMA	IR
evaluate Boolean operations used to construct logic gates.	IRMA	IR	IR	IRMA	IRMA	IR
discuss data compression and some of the techniques.	IRMA	IR	IR	IRMA	IRMA	IR
describe the role of the CPU, bus and motherboard.	IRMA	IR	IR	IRMA	IRMA	IR
discuss machine instructions and machine language.	IRMA	IR	IR	IRMA	IRMA	IR
explain the machine cycle: fetch, decode, execute.	IRMA	IR	IR	IRMA	IRMA	IR
state the key functions of the operating system.	IRMA	IR	IR	IRMA	IRMA	IR
describe how the operating system handles competing demands for resources.	IRMA	IR	IR	IRMA	IRMA	IR
explain fundamental network concepts.	IRMA	IR	IR	IRMA	IRMA	IR
describe the stages of the software life cycle.	IRMA	IR	IR	IRMA	IRMA	IR
discuss various software engineering methodologies.	IRMA	IR	IR	IRMA	IRMA	IR
define a database and discuss the fundamental concepts.	IRMA	IR	IR	IRMA	IRMA	IR
describe an artificial neural network.	IRMA	IR	IR	IRMA	IRMA	IR
discuss the role of artificial intelligence.	IRMA	IR	IR	IRMA	IRMA	IR

CSCI 150 - Network Essentials (Network+)	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
discuss computer network fundamentals including various network topologies	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss the ISO/OSI reference model and the function of the different network layers.	**IR**	**IRMA**	**IRMA**			**IRMA**
describe the components of a computer network including media and network devices.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss the role of the Ethernet.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss IP address and subnets.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss the traffic routing process.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss WANs and LANs.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss the optimization of network performance.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss network management.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss network security.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss troubleshooting network issues.	**IR**	**IRMA**	**IRMA**			**IRMA**
discuss preparation for industry certification testing.	**IR**	**IRMA**	**IRMA**			**IRMA**

CSCI 190 - Computer Ethics	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
discuss the pace of change in computer technology.				**IRMA**	**IR**	
define ethics and explain why it is relevant to computer technology.				**IRMA**	**IR**	
discuss privacy risks and threats to the rights of individuals.				**IRMA**	**IR**	
discuss free speech issues and global censorship controls.				**IRMA**	**IR**	
define intellectual property and discuss challenges to copyright and ownership.				**IRMA**	**IR**	
give examples of the impact of hacking and other computer crimes.				**IRMA**	**IR**	
describe the impact of computer technology on employment and work conditions.				**IRMA**	**IR**	
discuss the “digital divide” and the impact of computer technology on society.				**IRMA**	**IR**	
discuss concerns about the accuracy of information available on the internet.				**IRMA**	**IR**	
examine the impact of failures and errors in computer systems.				**IRMA**	**IR**	
discuss approaches to increase the reliability and safety of computer systems.				**IRMA**	**IR**	
discuss ethical guidelines for computer professionals.				**IRMA**	**IR**	

CSCI 230 - Security Essentials (Security+)	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
describe how to calculate risk and five approaches to managing risk	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
describe ways to monitor and diagnose networks	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss the impact of devices and infrastructure on security	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
describe the roles of access control, authentication, and authorization	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
describe common vulnerabilities of wireless network security	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
list cloud service models, delivery models and types of hypervisors	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss the weaknesses and vulnerabilities of the various applications	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss cryptography using either symmetric or asymmetric algorithms	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss various types of attacks from malware, vulnerabilities, and threats	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
describe the process of social engineering and other foes	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss the role of education and legislation on security administration	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**
discuss backup planning, disaster recovery and incident response	**IRMA**	**IR**	**IR**	**IRMA**	**IRMA**	**IR**

CSCI 262 - Project Management	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
define a project, list attributes and describe the triple constraint of project management.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe project management and key elements of the project management framework.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
explain the relationship between project, program and portfolio management.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe the role of the project manager and the skills required.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
explain the critical role of stakeholder management and top management commitment.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
distinguish between project development and product development.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe recent trends including globalization, outsourcing and virtual teams.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
explain why a project charter is important.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe the integrated change control process.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
explain the importance of good project scope management.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe how to create a work breakdown structure.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
explain the use of a Gantt chart and how to determine the critical path of a project.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**

describe different approaches to estimating cost and impact to a project.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
describe tools and techniques commonly used for quality control.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
discuss project human resource management and key concepts for managing people.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
assign resources, mange resource loading and achieve resource leveling.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
create and improve communication management plans.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**
create a risk management plan.	**IR**		**IR**	**IRMA**	**IRMA**	**IR**

CSCI 290 - Data Analytics (Data+)	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics	analyze a problem, and identify and define the appropriate computing requirements	design, implement, and evaluate a computer-based system, process, component, or	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities	communicate effectively with a range of audiences	use current techniques, skills, and tools necessary for computing practice
Course SLO: Students will be able to						
Identify basic concepts of data schemas and dimensions and explain the difference between common data structures and file formats.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**
Explain data acquisition concepts, reasons for cleansing and profiling datasets, and manipulate data to prepare it for analysis.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**
Apply the appropriate descriptive statistical methods and explain and interpret the outputs of analyses.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**
Communicate the insights of analysis through the conceptualization and the development of appropriate visualizations.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**
Summarize important data governance concepts and apply data quality control concepts.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**
Articulate the importance and impact of an ethical use of modern data analytics on business, society, and personal concerns.	**IR**	**IRMA**	**IRMA**	**IR**	**IR**	**IRMA**