Computer

Code	Name	Course Description and strengths
CSC 100	Learning How to Learn	Modes of thinking, what is learning, memory models, importance of sleep in learning, chunking, steps of forming memory chunks, effective learning tips and techniques, procrastination and memory, long-term memory, ideas and techniques for enhancing ability to learn, learning as a team, test checklist.
CSC 101	Computing Inventions and Innovations	Meanings of invention and innovation, knowledge and research areas in computer science discipline, applications of computer science in modern day inventions and innovations.
CSC 102	Introduction to Programming	Fundamental concepts of programming, basic computation, simple I/O, standard conditional and iterative structures, the definition of functions, and parameter passing, programming style and documentation, program testing and debugging, basic algorithms, basic type systems, fundamental object-oriented programming.
CSC 103	Computer Architectures and Organization	Computer systems, processor, memory and input/output modules, interconnections among these major components, central processing unit, control unit, registers, arithmetic and logic unit, and instruction unit, data representation, Boolean algebra, digital logic, architectural issues, instruction-set design, organizational issues, pipelining, parallel organization, multiple processors and vector processing organizations, performance measurements.
CSC 105	Web Application Development	Introduction to the World Wide Web, web application architecture, 3-tier architecture, model-view-controller, HTML5, CSS3, document object model, client-side programming, server-side programming, data transfer between client and server, RESTful web services, version control, basic web security, deploying a web server, data store.
CSC 165	Discrete Mathematics	Propositional logic, predicate logic, elementary number theory, methods of proof, set theory, proving set identities, counting and probability, permutations, combinations, binomial theorem, Pascal's triangle, conditional probability, functions, pigeonhole principle, relations, partial order relations, total order relations, sequences, mathematical induction, graphs and trees, paths and circuits, binary trees, and spanning trees.
CSC 209	Data Structures	Abstract data type in Java, pointer and vector in Java, running time and complexity, linked-lists, stacks, queues, trees, recursion, numerical case studies, trees, graph, binary heap, tree algorithms, sorting case studies, hash table, data compression, string matching, event-driven programming.
CSC 210	Analysis and Design of Algorithms	Computational problems, set and graphs, searching and sorting algorithms, brute force, divide-and-conquer, decrease-and-conquer, and transform-and-conquer approaches to problem solving, asymptotic efficiency of algorithms, algorithm optimizations using dynamic programming and greedy algorithms two major tradeoffs; space and time, of computing, and limitations of algorithm power.
CSC 213	Systems Analysis and Design	System component, system development life cycle, analysis methodologies and computer-aided software engineering tools, technical, operational, and economical feasibility studies, data flow diagram, entity relationship diagram, input design, output design, database design, architectural design, documentation, and presentation.
CSC 217	Operating Systems	Architecture, goals, and structure of operating system, process management, processes scheduling, process coordination and synchronization, deadlock, causes, conditions, prevention, memory management, physical memory, virtual memory, secondary storage management, disk, tertiary storage, Input/Output (I/O), file, directory, introduction to distributed operating systems and Internet of Things (IoT).
CSC 218	Database Systems	Database systems, database components and architecture, data modeling, database logical and physical design, Entity-relationship (ER) model, normalization, database languages, Structured Query Language (SQL), Relational Algebra, Relational Calculus, indexing, query optimization, transaction management, and NoSQL Database.
CSC 220	Computer Networks	Introduction to computer networks, layered network interfacing and communication, common network organizations (bus, ring, etc.), switching and routing, network architecture, the organization of the Internet, naming schemes; resource allocation, client-server and socket programming, reliable data delivery protocols, organization of the network layer, routing and forwarding in an IP network, IP addressing, local area networks (LAN), transmission media, Ethernet forwarding, multiple access, congestion, organization of a wireless network, mobility.
CSC 231	Agile Software Engineering	System component, system development life cycle, analysis methodologies and computer-aided software engineering tools, technical, operational, and economical feasibility studies, data flow diagram, entity relationship diagram, input design, output design, database design, architectural design, documentation, and presentation.
CSC 233	Programming Paradigms	Review of grammars, languages and their syntax and semantics, parsing and ambiguity, Backus Normal Form (BNF), finite state grammars and recognizers, lexical scanners, implementation of symbol tables, context-free languages, push-down automata, and context-free parsing techniques, alternative programming paradigms (i.e., imperative, functional, and logic).

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CSC 234	User-Centered Mobile Application Development	Introduction to programming mobile interactive systems, modern interactive platforms, foundations of human-centered software development, human behavior, usability, user-centered design and testing, designing interactions, collaboration and communication, human factors and security, mobile platforms, mobile application design and development.
CSC 261	Statistics for Scientists	Statistics, probability theory, probability distribution, sampling distribution, estimation, hypothesis testing, test of goodness of fit and independence, analysis of variance and experimental design, simple linear regression and multiple linear regression. Free statistical tool such as the R Project for Statistical Computing will be used throughout the course.
CSC 290	Computer Science Integrated Project I	In this course, students work in team to apply the knowledge and skills in analysis and design, algorithms, and database to solve a simple real-world problem. Students are expected to employ various modes of thinking and communication as a tool to drive the solution.
CSC 291	Computer Science Integrated Project II	In this course, students work in team to apply the knowledge and skills in agile software engineering and user-centered mobile application development to develop an innovative software prototype to address global sustainability issues. Students are expected to employ various modes of thinking and communication as a tool to drive the solution.
CSC 301	Global Employability for Computer Scientists	Perspectives on the world today and global employability, skills set and mindsets for global employability, market demands, benefits, preparation for future readiness, jobs search, job application process and preparation, preparing for an interview, negotiating terms and condition of service.
CSC 302	Seminar on Domains of Computer Science Applications	"Computer Science is Everywhere" concept, broad applications of computer science in everyday life, exploration of domains of computer science applications, domain knowledge, contemporary cross-cutting issues such as security and privacy.
CSC 319	Advanced Java	Object-oriented principles, object and class design, reuse, object-oriented code quality, quality improvement techniques, error handling, design patterns, object-oriented systems and applications, other programming styles of the selected programming language such as functional programming, reactive programming.
CSC 325	Computer Security	Computer security principles, managerial aspects of security: confidentiality, privacy, volatility in computerized information, secure design, protection of information against unauthorized observation, modification, and denial of service, encryption, defensive programming, web security, legal and ethical issues, and disaster recovery planning.
CSC 340	Artificial Intelligence	Fundamental of Artificial Intelligence (AI), basic searches, advanced searches, basic knowledge representation and reasoning, reasoning under uncertainty, basic machine learning soft computing, basic agents.
CSC 371	Introduction to Distributed Systems and Parallel Computing	Introduction and overview to concepts of distributed systems, including the aspect of parallel and distributed computing, fundamental system concepts such as concurrency and parallel execution, consistency, latency, key principles of distributed systems such as communication, processes, synchronization, consistency and replication, fault tolerance, security and practical examples, parallel computing, parallelization, basic parallel algorithms, analysis and programming.
CSC 490	Capstone Project Writing	In this course, students prepare and produce technical documentation of their work from CSC 498-499 Computer Science Capstone Project I, II in the form of a technical report and a technical paper. Both documents will follow well-defined standards for format and good practices for technical writing for publication.
CSC 498	Computer Science Capstone Project I	This course is the first portion of a project-based individual or group study investigation. Students will work under the supervision of faculty member(s). Each group must choose to conduct a systematic investigation of a computer science problem of its choice. Project topic must require a substantial background in computer science and the applications of studied concepts and techniques.
CSC 499	Computer Science Capstone Project II	This course is a continuation of CSC 498. Students must complete the coding, testing, and deployment phase, submit formal documentation, and pass the oral examination and project presentation of their projects. Students will work under the supervision of faculty member(s).