COMPUTER SCIENCE TOPICS COURSES
(from Fall 1998 to present)

CMS 395C Topics: Data Compression. Provides necessary theoretical foundations for data compression methods. Emphasis on lossless text compression with a look at basic concepts of information theory, Huffman coding, arithmetic coding, dictionary techniques, and predictive coding. Time permitting, lossy compression techniques will be explored by studying problems of sampling and quantization, transforms, and filters. Prerequisites: CMS 170 and MAT 219.

CMS 395/495 Topics: Embedded Systems. Explores the development of embedded software systems such as those used in cell phones. Looks at assembly code the way it is commonly used in practice – to implement small, fast, or special-purpose routines called from a main program written in C. Will use a software tool that executes on an ordinary Pentium-class PC to build simple stand-alone embedded applications. Prerequisites: CMS 250 and 370.

CMS 395/495 Multimedia Design. Project-oriented course focused on building multimedia presentations of computer science concepts. Uses Photoshop, some three-dimensional modeling tools, and Director with Lingo programming to create interactive, multimedia modules. Prerequisite for 400-level course: CMS 270.

CMS 395/495 Topic: Multi-Media with Objects. Students will learn a pure object-oriented language, a variety of Smalltalk, and use it to implement a substantial multimedia application. They will practice object-oriented design, learn to design and evaluate user interfaces, and learn to incorporate graphics, animation, sound, movies, web-browsers, etc., into their applications. Prerequisite: CMS 270.

CMS 395H/495H Topic: Networking. Study of the technology, architecture, and software used by systems of network connected computers. Topics include data transmission, local area network architectures, network protocols, inter-networking, distributed systems, security, and network applications such as e-mail, WWW, and FTP. Students will develop programs that run concurrently on multiple computers. Prerequisites: CMS 270 and instructor’s consent.

CMS 395/495 User Interface Design. Introduces principles of designing effective user interfaces for a wide range of computer applications. Principles will be used as a basis for designing software and implementing user interfaces in Java. Students will build a complete interface for an interesting application. Prerequisite: CMS 270.