

**Course Number:** CSC 690

**Course Title:** Interactive Multimedia Application Development

**Number of Credits:** 3

**Schedule:** Three hours of lecture/discussion per week.

**Prerequisite:** C or better in Programming Methodology (CS 340), or consent of instructor

### **Brief Description**

This is a hands-on, project-based course. Students will learn the basics of multimedia data formats and algorithms, and build applications that work with multimedia data using non-standard interfaces such as game controllers and multi-touch surfaces. Emphasis is on using open-source libraries and affordable and easily available devices.

### **Topics**

Digital data formats: audio, images, and video

Sampling and quantization

Color spaces and digital image filtering

Analysis and feature extraction

Use of non-traditional controllers/interfaces (multi-touch surfaces, video camera, Kinect, Wii, and other game controllers)

Applications: content-based retrieval, multimedia annotation, audio/music visualization, interactive environments

### **Course Objectives and Role in Program**

This is a hands-on, project-based course. The objectives include:

- Overview of basic topics in multimedia
- Overview of software technologies of non-traditional interfaces
- Development of interactive multimedia applications

### **Learning Outcomes**

At the end of this course students will

- understand basic concepts related to MM including data standards, algorithms and software
- experience development of multimedia software by utilizing existing libraries and descriptions of algorithms

- learn about cutting-edge multimedia topics through independent study and presentations in class

### **Method of Evaluation**

Student learning will be evaluated on the basis of

- Completeness and quality of programming assignments.
- Grade on midterm examination.
- In-class presentations
- Evaluation of projects

### **References**

Ze-Nian Li and Mark S. Drew, *Fundamentals of Multimedia* 1<sup>st</sup> edition, Prentice-Hall

Joshua Noble, *Programming Interactivity*, 2<sup>nd</sup> edition, O'Reilly Media