CSC/CPE 344 – Music Programming

1. CSC/CPE 344 - Music Programming

2. credit units 4 contact hours 6

3. Course Coordinator: John Clements

4. Textbook (or other required material): None


b. Prerequisite: CSC 141 or CSC 348; and CPE 357

c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

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6. a. Course Learning Objectives
The student will be able to:
- Write programs that map scores to sound data,
- Design filters to achieve particular effects,
- Translate filters designs into programs,
- Be able to convert between time and frequency domain for simple signals, and
- Develop programs that generate music algorithmically.

b. Level at which Student Outcomes are addressed
(“B” = Basic level, “I” = Intermediate level, “A” = Advanced level)

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7. Major Topics Covered: (number of lecture hours per)
- Basic physics of sound (2)
- Terms of western music (1)
- Representations of sound (1)
- MIDI Basics (1)
- Sound processing architectures (1)
- Digital Audio Workstations / plugin architectures (1)
- Simplifying sine waves (Euler's equation) (2)
- Taking apart sounds (the Fourier transform) (2)
- Synthesis architectures (1)
- Diagramming additive synthesizers (1)
- Ring Modulation, Amplitude Modulation (1)
- Frequency Modulation (1)
- Intro to filtering, LTI filters (2)
- Convolution (1)
- FIR filters, the Z transform (3)
- IIR Filters (2)
- Distortion (2)
- Algorithmic generation of music (3)
- Markov models (1)
- Genetic algorithms (1)