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Course description:  This course combines the techniques of modern computer science together with the tools of mathematics to teach students how to model and simulate problems of physical interest.

Course objectives:  The students upon completing these courses will have:

- the knowledge to choose proper numerical methods to solve a scientific problem;

- the knowledge of modeling techniques to develop a model for the problem;

- the programming skills to implement the model using an object-oriented programming language;

- the critical thinking skill to form conclusion based upon the results;

- the communication and writing skills to prepare and present technical reports;
• the experience of working in teams with their peers from different disciplines on multidisciplinary problems.

**Required Textbook:** None

**Reference Materials:**


**Interesting Web Sites:**

- http://kildare.math.nwu.edu/maxwell/index.html
- http://codeguru.earthweb.com/

**Grading Policy:**

Projects ........................................ 50%
Final Project ................................. 25%
Homework ................................. 15%
Class Participation ...................... 10%

**Academic Integrity:** The nature of higher education requires that students adhere to accepted standards of academic integrity. Violations of academic integrity include cheating, plagiarism, falsification and fabrication, complicity in academic dishonesty, personal misrepresentation and proxy, bribes, favors and threats. Cheating is a serious offense that will have grave consequences for your academic life.

Students who violate these standards will either fail the course outright or, at the instructor’s discretion, may merely receive a zero on any assignment for which the student receives inappropriate assistance. Particularly serious violations of these standards will be referred to the administration for possible additional action.