

Syllabus

Instructor	<i>Sheng-Chiang (John) Lee</i>	Textbooks Introduction to Computational Science by Shiflet & Shiflet 6 th edition
Location/Time	Lecture: MW 2-2:50pm (SEB140) Lab: R 9:25am-12:05pm (SEB214)	
Office/Contact	SEB 206; 478-301-2599 Lee_SC@Mercer.Edu	
Office Hour	MW 3~4pm, T 2~3pm or by appointment	
Pre-Requisite	MAT 191	

Course Description:

This course will introduce Mathematica® as a tool for scientific modeling. The syntax of Mathematica® as a symbolic computing environment will be discussed, and students will acquire sufficient proficiency in using Mathematica® to perform computational tasks, such as algebra, solving equations, visual presentations of results. Introductory concepts and practices of "programming" will be introduced through working with Mathematica®'s "functions". Students are not expected to learn new mathematical knowledge in this course, but should be able to apply existing knowledge to model and solve a problem.

Objectives:

After taking this course, you should

- Be able to use *Mathematica*® to perform common computational tasks;
- Understand the issues of precision and accuracy involved in numerical computation;
- Have acquired some experience in numerical/mathematical modeling of a real problem;

Tentative Coverage:

1. Introduction to Mathematica®
 - a. Symbolic computation
 - b. Working with data (numbers, lists, strings, etc...)
 - c. Functions
 - d. Graphical presentation
2. Introduction to Computational Modeling
 - a. Issues with numbers: errors
 - b. Calculus in numerical simulations
 - c. Simple simulation techniques
3. Case Study & Project Discussions

Grading Methods:

Grading Scale:

Score:	90+	85~89	80~84	75~79	70~74	60~69	59-
Grade:	A	B+	B	C+	C	D	F

Grading Components:

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	Reading Quiz	Homework/Exercises	Final Project
Weight	10%	50%	40%

Reading Quiz:

Students should always be prepared for a class. Reading quizzes will be delivered throughout the semester and will always be announced in the previous class.

Homework/In-Class Exercises:

Homework assignments are more comprehensive exercises related to the class coverage. The laboratory periods will be used as a time for discussion and group work on the assignments.

In-Class Exercises are small practices students will perform during classes, and submit at the end of the class for grades. No make-up will be available for students missing the class.

Final Project:

Students should choose a "real" problem to solve/model/simulate in *Mathematica*® with the tools learned in this course. The topic of this project should be first submitted to the instructor before the end of **September** to give ample time for discussion and revision. The topic should be finalized by the end of the week after Fall break.

Class Evaluation

In an ongoing effort to improve the quality of instruction, each student enrolled in this course is required to complete an end-of-semester course evaluation, to be administered through ***BlackBoard*** during the last week of the semester.

Important Dates:

Last Day for Course Withdrawal: 10/26/2012

Final Project Due: 12/10/2012, 5pm

Class Policies:

Attendance Policy: Attendance is mandatory for both lectures and labs. We will have hands-on exercise almost in each section, and many of them will be graded. You will not have be able to make them up if you miss a class.

Class Etiquette: You are expected to conduct yourself in a respectful manner to your fellow classmates and the instructor. The instructor may ask you to leave the classroom/lab if your behavior is disturbing to the instructor or other students.

Honor Code: You are bound by the Mercer honor code. The College's academic misconduct policy will be followed. All work, for which a grade is received, must be the **original** work of the **student** without aid or assistance of another party, or any printed and or electronic data/information. Academic misconduct cases will be referred to the honor council and the student will automatically receive a grade of incomplete (IC) pending a ruling by the honor council.

Cell Phone and Pager Usage: Out of courtesy for all those participating in the learning

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experience, all cell phones and pagers must be **kept in your pocket/backpack with power/ringer off** before entering any classroom, lab, or formal academic or performance event. Warning will be given for the first-time violation. One semester credit will be taken for each following violation up to three times. If a student keeps violating the policy, one may be asked to leave the room by the instructor.

Documented Disability Statement: *Students with a documented disability should inform the instructor at the close of the first class meeting or as soon as possible. If you are not registered with Disability Services, the instructor will refer you to the Student Support Services office for consultation regarding documentation of your disability and eligibility for accommodations under the ADA/504. In order to receive accommodations, eligible students must provide each instructor with a Faculty Accommodation Form from Disability Services. Students must return the completed and signed form to the Disability Services office on the 3rd floor of the Connell Student Center. Students with a documented disability who do not wish to use accommodations are strongly encouraged to register with Disability Services and complete a Faculty Accommodation Form each semester. For further information please contact Disability Services at 301-2778 or visit the website at <http://studentaffairs.mercer.edu/disabilityservices/>.*