

## **MAT 331 - Spring 2016 Course Description**

Exploration of the use of the computer as a tool to gain insight into complex mathematical problems through a project-oriented approach. Students learn both the relevant mathematical concepts and ways that the computer can be used to understand them. Interesting applications of mathematics to computer science are also discussed. Introduce computer language (Matlab like C) and basic programming, data structure, algorithm, and debugging skill. application on Linear Algebra, Numerical Analysis, Graph Theory, Differential Equations, Dynamic Systems.

### **Lectures & Office Hours**

**Lectures:** Monday & Fridays 1:00-2:20pm in Mathematics S235;

**Office hours:** Monday& Fridays 2:20 - 3:20pm; Fridays 12:00-1:00pm math tower 5125B

### **Software**

We will use *MatLab R2015a*, which is a computational software program developed by MathWorks and used in many scientific, engineering, mathematical and computing fields, Stony Brook students can download the Windows/Mac/Linux version of *MatLab* from **Softweb**. You need your Stony Brook netID and netID password to log in to Softweb. You can also get obtain an Activation Key in the same place. In addition, you can use any of the campus SINC sites, or you can access the **Virtual SINC site**.

### **Textbook**

Matlab, Third Edition: A Practical Introduction to Programming and Problem Solving by Stormy Attaway

### **Grading Policy**

There will be no exams. Grades will be computed using the following scheme:

- Homework – 70%
- Projects – 30%

Students are expected to attend class regularly and to keep up with the material presented in the lecture and the assigned reading. There will be roughly four or five homework assignments (containing short exercises involving mathematical proofs and Mathematica code) as well as projects. You may work together on your homework assignments and projects, and you are encouraged to do so. However, all solutions must be written up independently.

A project is more like a term paper and you will be expected to devote a significant amount of time to doing

it, as well as taking care with the presentation. The project should contain a detailed description of the problem or topic, what means were used to solve it, the mathematical solution and the computer program.

**Disabilities:** If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at <http://studentaffairs.stonybrook.edu/dss/> or (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website:

<http://www.stonybrook.edu/ehs/fire/disabilities.shtml>

**Academic Integrity:** Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

<http://www.stonybrook.edu/uaa/academicjudiciary/>

**Critical Incident Management:** Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.