

ICSI 401/501 Section 3**Course Title: Numerical Methods****(Fall 2019)****Class Meeting Time: M, W 12:35-1:35 PM****Location: BBB, Room 012****INSTRUCTOR**

Instructor	Abram Magner
Office location	UAB 431
Office hours	M 2:30-4:30 PM
E-mail address	amagner@albany.edu

**In e-mail communications, please include “CSI 401/501” in your subject line.
This syllabus is subject to change at the instructor’s discretion.**

TEACHING ASSISTANTS / PEER EDUCATORS (AND LAB/DISCUSSION SCHEDULE, if any)

TA’s / Peer educators	TBD
TA’s office location	TBD
TA’s office hours	TBD
TA’s email addresses	TBD

REQUIRED TEXTBOOK

Text/Reference Book(s):

Title: Numerical Methods: Design, Analysis, and Implementation of Algorithms,
3.2.2012 edition

Authors: Anne Greenbaum and Timothy Chartier

Published by: Princeton University Press, ISBN: 9780691151229

COURSE DESCRIPTION / OVERVIEW

This course will cover methods for the numerical solution of a variety of problems on a digital computer. A tentative list of topics covered in this course will include mathematical modeling, floating point computations, conditioning, numerical linear algebra, root finding, function approximation, interpolation, numerical integration and differentiation, numerical solutions of differential equations, basic optimization, and linear programming. Blackboard will be used to provide essential course materials, the most current syllabus (which may change at the instructor’s discretion), and assignments. A tentative class schedule will be updated throughout the semester.

PREREQUISITES: See the course catalogue for formal requirements. A solid grasp of calculus (including convergence of sequences and series, limits, differentiation, integration, etc.) and linear algebra, as well as programming experience, are beneficial.

LEARNING OBJECTIVES / OUTCOMES

Students will

- Understand the importance and subtleties of computations with floating point numbers.
- Gain experience in implementing numerical methods in Matlab.
- Understand various fundamental numerical methods for problems such as root finding, function approximation, numerical linear algebra, quadrature, numerical solutions to differential equations, etc.

GRADING

Exams: Two exams will be given. A portion of the class period preceding each exam will be utilized for a review session. There is a final exam during finals week.

In-class quizzes: 5%

Homework: 35%

Midterm: 30%

Final: 30%

Total possible points = 100

Grading Scale

A: 100-95 points A-: 94-90 points

B+: 89-87 points B: 84-86 points B-: 80-83 points

C+: 79-76 points C: 75-70 points

D: 69-60 points

E: 59 points and below

Students must complete all requirements in order to pass the course. A grade of incomplete will be given only when circumstances beyond the student's control cause a substantial amount of course work to be unfinished by the end of the semester. Per department policy, "...students may not submit additional work or be re-examined for the purpose of improving their grades once the course has been completed and final grades assigned."

ATTENDANCE/LATENESS/USE OF COMPUTERS IN CLASS

Attendance itself is not graded, but in-class tasks (including random short quizzes) constitute an important part of the course grade. Missing class means earning an automatic "0" for the activities missed. No make-up opportunities will be available for in-class activities except for documented cases of justifying circumstances. Please do not disrupt class by entering late or leaving early without instructor approval. Also see http://www.albany.edu/health_center/medicalexcuse.shtml.

ELECTRONICS POLICY

Please show respect for your fellow students by making sure that your cell phone is turned off before entering the classroom. You are allowed to bring your laptop to class for access to reading assignments and note taking. Please refrain from e-mailing, gaming, surfing, and other activities unrelated to the class.

RESPONSIBLE COMPUTING

Students are required to read the University at Albany Policy for the Responsible Use of Information Technology (<https://wiki.albany.edu/display/public/askit/Responsible+Use+of+Information+Technology+Policy>). Students will be expected to apply the policies discussed in this document to all computing and electronic communications in the

course.

STUDENTS WITH DISABILITIES

Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning and psychiatric disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Director of the Disability Resource Center (Campus Center 130, 442-5490). That office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations. For further information refer to the University's Disclosure Statement regarding Reasonable Accommodation found at the bottom of the document at the following website: <http://www.albany.edu/disability/docs/RAP.doc>. This website can be reached by following the link under "Reasonable Accommodation Policy" at the following webpage <http://www.albany.edu/disability/faculty-staff.shtml>.

ACADEMIC HONESTY, COLLABORATION POLICY, AND HONOR CODE

You are free to form study groups and discuss homework assignments and projects. However, you must write up all solutions and code from scratch independently.

Plagiarism and other acts of academic dishonesty will be punished. Please read the Standards of Academic Integrity and Policies in the Undergraduate Bulletin:

https://www.albany.edu/undergraduate_bulletin/regulations.html

If you feel that you may have violated the rules, speak to us as soon as possible. The following are examples of honor code violations:

- Looking at the writeup or code of another student.
- Showing your writeup or code to another student.
- Discussing homework problems in such detail that your solution (writeup or code) is almost identical to another student's answer.
- Uploading your writeup or code to a public repository (e.g., github, bitbucket, pastebin) so that it can be accessed by other students.
- Looking at solutions from previous years' homework assignments – either official or written up by another student.