

# NUMERICAL ANALYSIS (MATH 407 - 001),

CRN 76201, FALL 2024  
KELLER 403, TR 9:00 AM - 10:15 AM

---

<b>Instructor:</b> Dr. Farzana Nasrin	<b>Class Time:</b> TR 9:00- 10:15AM
<b>Email:</b> <a href="mailto:fnasrin@hawaii.edu">fnasrin@hawaii.edu</a>	<b>Office Hours:</b>

---

**Course Description:** Introduction to algorithms for solving mathematics problems. The course will focus on numerical solutions of linear/nonlinear systems of equations, numerical integration and numerical differentiation, initial value problems for ordinary (and systems of ordinary) differential equations and boundary value problems. The focus of this class is on practical computation, and the course will serve as a basic introduction to programming for numerical analysis using the software Matlab.

**Prerequisites:** 243 or 253A, and 307 or 311, and one semester programming; or consent.

**Textbook:** *Numerical Analysis* by Timothy Sauer, third Edition.

**Optional Textbook:** *Numerical Methods using Matlab* by G.G. Lindfield and J. E. T. Penny, third Edition.

**Course objectives:** Upon successful completion, the student will have a foundation in the basic topics of the theory of Numerical Analysis listed above in the syllabus. Emphasis on rigor will provide students the understanding needed for graduate work, and in the study of the logical foundations of mathematics.

**Homework:** Homework will be assigned approximately in every two weeks and will be due during the beginning of the class on the dates specified. No late homework will be accepted, but I will drop the lowest score. Some of the homework problems will require programming in Matlab.

**Exams:** There will be one midterm exam and one final exam. The dates are available in the syllabus. Attendance on these dates is compulsory. There will be no exam make-ups.

**Grading Policy:** Your semester grade consists of:

- Homework 35%
- Midterm 30 %
- Final Exam 35 %

Grades will based on the following scale:

A	$\geq 92.0\%$	A-	90 – 91.9%
B+	87 – 89.9%	B	83 – 86.9%
B-	80 – 82.9%	C+	77 – 79.9%
C	70 – 76.9%	D+	67 – 69.9%
D	60 – 66.9%	F	< 60%

**Reading:** In general, you should do the assigned reading before anything else, i.e., before the topics come up in class or in the homework. Throughout the semester, I'll always assume that you've done all of the reading. In particular, not every topic you have to know will be covered in class.

## Tentative Schedule

**Accommodations:** Any student who feels s/he may need an accommodation based on the impact of a disability is invited to contact me privately. I would be happy to work with you, and the KOKUA Program (Office for Students

with Disabilities) to ensure reasonable accommodations in my course. KOKUA can be reached at (808) 956-7511, (808) 956-7612 (voice/text), or [kokua@hawaii.edu](mailto:kokua@hawaii.edu).

**Academic Dishonesty:** Cheating, plagiarism, or other forms of academic dishonesty are not permitted within this course and are prohibited within the Systemwide Student Conduct Code (EP 7.208). Examples include: fabrication, facilitation, cheating, plagiarism, and use of improper materials. Any incident of suspected academic dishonesty will be reported to the Office of Judicial Affairs for review and possible adjudication. Additionally, the instructor may take action in regards to the grade for the deliverable or course as they see fit.

**Counseling Services:** The Counseling and Student Development Center (CSDC) offers support to UHM students. All services are confidential and most are free of charge for Manoa students. CSDC office hours are M–F 8:00AM–4:30PM. They also offer immediate walk in appointments for urgent or emergency/crisis services during their regular daily hours. To learn more, visit [www.manoa.hawaii.edu/counseling](http://www.manoa.hawaii.edu/counseling).