

Math/EECS 781: Numerical Analysis I, Fall 2020, 3 Credit Hours

KU Course Number 11880, Fall 2020

The University of Kansas

Department of Mathematics

Lectures:	Monday 11:00 – 12:15, in-person meeting, Kansas Union, Kansas Room Wednesday 11:00 – 12:15, online meeting via Zoom
Instructor:	Paul Cazeaux (pcazeaux@ku.edu), Snow Hall 509
Course web site:	class Blackboard site or instructor web page
Office hours (online):	Tuesday 11:00 – 12:00, Wednesday and Thursday 13:30 – 14:30, or by appointment.

Description: Error analysis; Solutions of Equations in one variable; Interpolation and polynomial approximation; numerical differentiation and integration; Initial-value problems for ordinary differential equations.

Prerequisites: Students should have a basic knowledge of linear algebra, ordinary differential equations; No extensive preliminary programming experience is necessary, but advanced knowledge of Matlab and LaTeX is advised.

Textbook: *Numerical Mathematics, Second Edition*, Alfio Quarteroni, Riccardo Sacco & Fausto Saleri, Springer, is the primary reading source for the course. Complementary materials to the main textbook will be presented during the classes, so please attend and take notes. Additional materials may be posted on-line. Please check regularly for updates.

Exam schedule: Wednesday, September 30 (tentative): Midterm (11:00–12:15, in class)
Wednesday, November 11 (tentative): Midterm (11:00–12:15, in class)
Tuesday, December 8: Final exam (online, 10:30 a.m.–1:00 p.m.)

Grading Policy: Homework Assignments (40%), Midterm Exams (30%) and Final Exam (30%) of the final grade. Final scores of at least 90, 80, 70, 60% guarantee grades of *A*, *B*, *C* and *D*, respectively.

Attendance: You are expected to attend every class with your textbook and prepare the material by reading covered sections of the textbook ahead of time. If you miss a class it is your responsibility to make up missed material on your own time.

Midterms: There are two midterm exams, each 75 minutes long. All exams will be closed book: no books, no notes, and no papers may be used during the exams. If you are unable to take the exams because of sickness or dire emergencies, please contact me promptly.

Homework: Homework assignments will be assigned regularly over the course of the semester and may include, but are not limited to, problems from the textbook or homemade, and short programming assignments. **Homework assignments are due each Monday before class.** No credit for late homework.

Homework will only be accepted in electronic form, uploaded to Blackboard. Your homework must be neatly, clearly and logically written, and it is highly recommended to typeset assignments using LaTeX.

I encourage you to discuss homework problems with your classmates, including strategies for solving different kinds of problems. Indeed this is one of the best ways to improve your understanding of the course. However, when you write up your solutions you must do this on your own. Handing in homework that is almost identical to a classmate's is a form of cheating and will not be tolerated.

- Announcements: Students are held responsible for all announcements and all course content delivered in class and in workshop. All official announcements occur in class only. I will not make extraordinary efforts to contact students outside of lecture. Those who choose not to attend class do so at considerable peril to their grade.
- Make ups: (for one-time extraordinary events) Exam absences due to recognized University-related activities, religious holidays, verifiable illness, and family/medical emergencies will be dealt with on an individual basis. For university activities or religious holidays you should make arrangements with your instructor well in advance. If you are suddenly unable to take an exam, you should e-mail me ASAP. If you are too sick to take an exam, do not take the exam. There are no retakes. In all cases of absence from exams a written excuse is required for a make-up to be granted. Ignorance of the time and place of an exam will not be accepted as an excuse for absence from an exam. If you do not take an exam, you will be assigned a grade of zero for that exam.
- Attendance and Participation: The knowledge and skills you will gain in this course highly depend on your participation in class learning activities. Because we are in the middle of a pandemic, this course does not require class attendance per se. This is because I would like students who are feeling ill, at-risk or wish to protect themselves or others feel comfortable staying home. Students who are unable to attend class in-person will be provided the same materials and guidance (e.g., Zoom live-stream of the lectures) and should plan to regularly engage me during office hours or by appointment.
- Safety, health, masks: **To protect all of us, everyone must wear a mask in the classroom as required by the Protect KU Pledge and by University policy.** Violations of the mask policy in classrooms are treated as academic misconduct. If you come to class without a mask, I will ask you to put one on. If you do not put on a mask when asked, you will have to leave class. Violations will be reported, and consequences will follow, up to and including suspension from the course.
- Illness & attendance: Please use the CVKey app for self-screening to help determine if you should attend in-person class activities. If you choose not to use the app or do not have a compatible device, please use the paper health assessment form. The app and the paper form are available at cvkey.ku.edu.
- You will be given an excused absence from in-person class activities (no doctor's note required) if you answer yes to any of the questions in the app or on the paper form. Symptoms and other guidance in the app and on the paper form may change based on new federal, state and local health recommendations and requirements.
- It is important that you spend the necessary time working in this course to achieve the expected outcomes by the end of the term. If you face challenges to fully participating at any time during the semester, please let me know, and please contact me if you expect to miss class. I am available and ready to support your success. Additionally, if you need to report an extended illness or serious accident, please contact Student Support and Case Management at course-adapt@ku.edu or 785-864-4060. A case manager will send email notifications to your instructor(s) on your behalf. When you are able, you will need to follow up with your professors to coordinate a temporary arrangement regarding missed instruction and coursework.
- Religious Holidays: *Any student having a conflict between a mandated religious holiday and the course schedule should contact the instructor as soon as possible.*
- Policy: *By attending this classes you agree to the University of Kansas Policy as stated in Code of Student Rights and Responsibilities (CSRR) and University Senate Rules and Regulations (USRR), see <http://policy.ku.edu/>, and the rules introduced below.*

- Special needs: Please inform me of any accommodations granted through the Academic Achievement and Access Center (AAAC) within the first two weeks of class. More specifically, please present a copy of your accommodation letter to your instructor during the first two weeks and set up your accommodations for the whole semester. The instructor will be glad to assist you.
The AAAC coordinates academic accommodations and services for all eligible KU students with disabilities. If you have a disability for which you wish to request accommodations and have not contacted the AAAC, please do so as soon as possible. They are located in 22 Strong Hall and can be reached at 785-864-4064 (V/TTY). Information about their services can be found at <http://www.access.ku.edu>.
- Honor Code: *Plagiarism, e.g., copying exercise solutions, is unacceptable in any academic environment, and is a serious violation of the University's policy, see Article II, Section 6 USRR. You are encouraged to discuss your homeworks with me and your colleagues, however, the submitted solutions and MATLAB codes must be your own original work. The exams must be your own individual work.*
- Disclaimer: *Course schedule and procedures are subject to change in the event of extenuating circumstances and the instructor reserves the right to modify any information in this syllabus. Notice of changes will be announced in class. Members of the class should check regularly the class Blackboard site for announcements.*
- Statement: *By signing to this class you are acknowledging that you have read and understand the content of this syllabus and you agree to follow all course expectations.*
- Diversity, Inclusion, Civility: *The instructor considers this classroom to be a place where you will be treated with respect as a human being - regardless of gender, race, ethnicity, national origin, religious affiliation, sexual orientation, gender identity, political beliefs, age, or ability. Additionally, diversity of thought is appreciated and encouraged, provided you can agree to disagree. It is the instructor's expectation that ALL students experience this classroom as a safe environment.*
The University of Kansas supports an inclusive learning environment in which diversity and individual differences are understood, respected, and appreciated. We believe that all students benefit from training and experiences that will help them to learn, lead, and serve in an increasingly diverse society. All members of our campus community must accept the responsibility to demonstrate civility and respect for the dignity of others.
Expressions or actions that disparage a person's or group's race, ethnicity, nationality, culture, gender, gender identity / expression, religion, sexual orientation, age, veteran status, or disability are contrary to the mission of the University. We expect that KU students, faculty, and staff will promote an atmosphere of respect for all members of our KU community. Civility and respect for the opinions of others are very important in an academic environment. It is likely you may not agree with everything that is said or discussed in the classroom. Courteous behavior and responses are expected at all times. When you disagree with someone, be sure that you make a distinction between criticizing an idea and criticizing the person. Expressions or actions that disparage a person's or race, ethnicity, nationality, culture, gender, gender identity / expression, religion, sexual orientation, age, disability, or marital, parental, or veteran status are contrary to the mission of this course and will not be tolerated.

Concealed Carry: *Individuals who choose to carry concealed handguns are solely responsible to do so in a safe and secure manner in strict conformity with state and federal laws and KU weapons policy. Safety measures outlined in the KU weapons policy specify that a concealed handgun: Must be under the constant control of the carrier. Must be out of view, concealed either on the body of the carrier, or backpack, purse, or bag that remains under the constant control of the carrier. Must be in a holster that covers the trigger area and secures any external hammer in an un-cocked position. Must have the safety on, and have no round in the chamber.*

Intellectual Property: *Pursuant to the University of Kansas' Policy on Commercial Note-Taking Ventures, commercial note-taking is not permitted in this course. Lecture notes and course materials may be taken for personal use, for the purpose of mastering the course material, and may not be sold to any person or entity in any form. Any student engaged in or contributing to the commercial exchange of notes or course materials will be subject to discipline, including academic misconduct charges, in accordance with University policy. Please note: note-taking provided by a student volunteer for a student with a disability, as a reasonable accommodation under the ADA, is not the same as commercial note-taking and is not covered under this policy.*