

Instructor: Patti Iles Aymond
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Phone: (225) 578-4359

Teaching Assistant(s): TBD

Sections 1; Class: TTh 3 – 4:20 PM;

1221 Patrick F Taylor Hall

Class webpage: Moodle

Zoom requires advance registration:

https://lsu.zoom.us/meeting/register/tJYsfuCtqTsjHtSwcvEI8nVs_CG9xfwcH27D

Virtual Office Hours:

Monday & Wednesday 1PM -3 PM

and by Appointment

<https://lsu.zoom.us/j/94929415156?pwd=eFBkODFha3JZVmNSYTdFby9yS1RSUT09>

Course Description

Computer-oriented methods for solving numerical problems in science and engineering; numerical solutions to systems of simultaneous linear equations, nonlinear algebraic equations (root solving), differentiation and integration, ordinary differential equations, interpolation and curve fitting.

Prerequisites:

1. Requirements: MATH 1552 and CSC 1254 or CSC 1351.
2. Recommendation: Completion of or registration in MATH 2090.
3. Credit will not be given for both this course and CSC 1240, CSC 2533 or IE 2060.

Course Objectives

- Apply programming skills using software to solve problems related to numerical methods
- Understand the trade-off between speed and accuracy of numerical methods and provide error estimates
- Solve systems of non-linear equations using iterative methods
- Apply methods of polynomial interpolations to evaluate interpolations and extrapolations
- Apply numerical methods for differentiation and integration
- Solve systems of linear equations by direct methods and iterative methods
- Apply numerical methods to solve ordinary differential equations

Course Layout

- **Hybrid Class Format:** The class will be structured in a hybrid nature. Because the course classroom is not large enough to meet the 50% occupancy requirement, not all students are allowed to attend all scheduled in-person classes at one time. Students with a last name beginning with A-J may attend class on Tuesday. Students with a last name of K-Z may attend class on Thursday. Classes will be livestreamed, using Zoom, for students that are not in the classroom. Class attendance is strongly encouraged, but not required. All graded assignments and assessments will be online.
- **Homework/Programming Assignments:** Students will complete homework and programming assignments on their own time. Assignments are to be completed in or uploaded to Gradescope or Moodle, as instructed.
- **Exams:** There will be an 80 minute midterm exam and a two hour non-comprehensive final exam. The midterm exam will be online, but it will be held during a scheduled class time. The final exam will be held online, at the date/time established by the LSU final exam schedule. Arrangements for a make-up test must be made prior to the test. The instructor will be following LSU policy PS-22 with regards to valid reasons for missing an exam.

Evaluation

Grading will be based on homework/programming assignments and two exams:

50%	Homework & Programs	25%	Final Exam
25%	Midterm Exam		

Final grade will be determined by overall average as follows:

Score	Grade	Score	Grade	Score	Grade
90-92.99	A-	93-96.99	A	97-100	A+
80-82.99	B-	83-86.9	B	87-89.99	B+
70-72.99	C-	73-76.99	C	77-79.99	C+
60-62.99	D-	63-66.99	D	67-69.99	D+
0-59.99	F				

Required Textbook

Elementary Numerical Analysis, Atkinson & Han (ISBN-13: 978-0471433378)

Course Topics

- Taylor polynomials
- Error and computer arithmetic
- Root finding methods
- Interpolation and approximation:
- Numerical Integration and Differentiation
- Systems of linear equations
- Numerical linear algebra
- Ordinary differential equation methods

Class Policies

- Moodle: The course Moodle will be the official avenue for communication between the instructor, teaching assistants, and students. Moodle will be used for providing general course information, making announcements, making assignments, turning in assignments, and posting grades. Check it often for new or updated information. If you don't see something in Moodle that you think should be there, report it to the instructor as soon as possible.
- Gradescope: Gradescope will be used for submitting programming assignments for grading. Homework assignments may also be uploaded into Gradescope for submission. The instructor will enroll students in the course Gradescope.
- Communication: All electronic communication between students and the instructor and teaching assistants should maintain a professional decorum (e.g., address the recipient properly, use whole words, complete sentences, and proper grammar). Be sure to include enough detail of the problem so that you form a well-thought out question. The more detail you can give as to your problem, the more likely the instructor or teaching assistant will be able to help you.
- Distractions: Please silence your phones and put them away at the beginning of every class. If you receive an urgent call or text during class, please take the device into the hall to complete your call/text. If you must enter class late or leave early, please do so as quietly as possible. Please avoid activities that will distract your classmates (e.g., talking, rustling papers, moving around), etc. The instructor reserves the right to expel a student from the lecture room for distracting, disruptive, or disrespectful behavior.
- Preparation for class: It is important that you come to class prepared. That includes completing the reading assignment in advance and bringing pencil(s) and paper for in-class practice problems.

- Grading Change requests: All grades are uploaded to the course Moodle. Concerns about grades must be addressed **within one week** after the graded work is made available. Thereafter, all grade book entries are final. Grade change requests must be submitted to the instructor, in writing, and must include the following:
 - Name of student
 - Date of the assignment/project/exam
 - Date of submission
 - Course number
 - List of the items that need to be corrected along with a concise reason as to why the grade change is needed.
 - Original assignment/test/quiz (not a copy).

Grade change request decisions are at the discretion of the instructor and will be returned as the instructor has time to complete the regrade. Final exam and final grade change requests can be submitted up to two weeks after the final exam. After that time, grade change requests will be denied.

- Due Dates: **All work intended for grading must be submitted on time.** Any work not submitted before the cut-off period is not graded. Programming projects will be submitted on the course Gradescope. Homework assignments will be taken on or uploaded to Gradescope or Moodle. **Both Gradescope and Moodle are unforgiving, so do not wait until the last minute to upload your assignment.**
- Missed Assignment/Exams: A grade of 0 is awarded for missed assignment/exam in the absence of a valid excuse, as determined by the instructor. In the unusual circumstance that you must miss an assignment or exam due to medical reasons or other unforeseen emergency, you need to notify the instructor as soon as possible and provide sufficient documentation to verify the claim. The instructor will be following LSU policy PS-22 with regards to valid reasons for missing an exam. If the instructor deems that the excuse is valid and sufficiently documented, the instructor will determine how the missed work will be made up, depending on the circumstance.
- Special Accommodation: Students who have a disability that require accommodation(s) should make an appointment with the Office of Disability Services (Phone (225) 578-5919 or TDD: (225) 579-2600) to discuss their specific needs and present a letter from the ODS informing the instructor of their needs. All such matters, by University regulations, are strictly confidential.
- Collaborative Work: All class exams, programming projects, quizzes, and homework assignments must be the independent work of the student. **CODE SHOULD NEVER BE COPIED FROM ANY SOURCE.** Students are encouraged to work together on programming projects, but the work you turn in must be your own. In other words, you can discuss problems and approaches to your programs, but you should never share answers and source code.
- Exam Dates:
 - Midterm Exam: Tuesday, October 6, during class
 - Final Exam: Wednesday, December 9, 5:30 PM – 7:30 PM
- Important Dates:
 - Tuesday, September 1 – Final day to drop without a W (4:30 PM deadline)
 - Friday, November 6 – Final day for dropping classes (4:30 PM deadline)
 - Friday, November 6 – Final day to request rescheduling a final examination when three examinations are scheduled in 24 hours

Academic Integrity

- Students are required to abide by the LSU Code of Student Conduct Handbook. “LSU is an interactive community in which Students, faculty, and staff together strive to pursue truth, advance learning, and uphold the highest standards of performance in an academic, social, and social media environments” [from LSU Code of Student Conduct]. It is assumed that all students enrolled in this course have read the [Code of Student Conduct](#) – specifically section 10.1 (Academic Misconduct).
- All assignments will be monitored against academic dishonesty. Examples of academic dishonesty include, but are not limited to:
 - Accessing the solution manual to the text and copying the solution before attempting the problem on your own, while attempting the problem on your own, or after checking your work and finding your solution to be incorrect.
 - Copying a problem solution from a classmate (be it one problem or the entire problem set). The copy may be identical or a rearranged version of another student.
 - Giving your completed problem set to another student who has not yet completed their problem set.
 - Copying a solution from another student verbatim.
 - Peeking at a problem solution without the knowledge of the spied upon student.
- All students, regardless of level of guilt, will be reviewed by SAA (Student Advocacy and Accountability) in the event that an academic misconduct violation is detected.
 - This is particularly important for those of you who “share” your homework with others. Many times this is done with the best of intentions to help a classmate, but the classmate may copy your solution and present the work as their own. The “sharer”, in the eyes of the university, is just as guilty as the copier.
 - **Keep your work safe.** Never leave your homework with other students or send your solution to other students.
- If there is evidence of academic misconduct on homework assignments, programming projects, quizzes or exams, all involved parties will be submitted to SAA for review.

Behavioral Misconduct

- Per section 5.1 of the [Code of Student Conduct](#), the Code applies to conduct that occurs on the Campus, at LSU-sponsored activities, and/or when the Student or Registered Student Organization is representing LSU. The University shall have discretion to extend jurisdiction over conduct that occurs off campus when the conduct adversely and significantly affects the learning environment or University community and would be in violation of the Code if the conduct had occurred on campus. This includes behavior that may occur in a remote learning environment, such as email, discussion forums, zoom webinars, or any other platform or solution used for a course. In determining whether to extend jurisdiction, the University may consider its ability to gather information. Potential violations of the Code can be reported through [LSU Cares](#).

COVID-19

We remain under pandemic conditions and expect to be in this state for the entire semester. In order to consistently provide the highest quality LSU education, all students should follow current LSU guidelines. These include the following:

- If you have any signs of illness, do not come to class.
- In order to protect all campus community members, the University requires everyone to wear facemasks/cloths on campus. Failure to do so is a violation of the code of student conduct.
- Wash hands with soap and water or clean with sanitizer frequently, and refrain from touching your face.
- If you have to cough or sneeze unexpectedly, please be mindful of others nearby and cough or sneeze into your elbow or shield yourself the best you can.
- If you have been exposed to others who have tested positive for COVID-19, self-quarantine consistent with current CDC guidelines.

Daily Symptom Checker:

You are required to respond to a daily symptom check request sent via email or text message each morning. Completing the symptom checker will take approximately one to two minutes. Once you have provided information about your symptoms, you will be given feedback on whether or not you are certified to return to campus and attend your classes. Additionally, if you test positive for COVID-19, you are required to report it in your daily symptom checker application.

Resources for Students:

Your health and safety are LSU's top priority. If you are feeling ill or overwhelmed with anxiety, please contact the LSU Student Health Center for medical advice and mental health support. General health care and mental health support are available for all enrolled students through telehealth appointments.

Unexpected Changes to Courses:

Due to the unpredictable nature of the situation, the format of the course and/or requirements may be forced to change, and if this is the case that students will be given appropriate notification.