

CSC 2262: Numerical Methods

Instructor: James Ghawaly, jghawaly@lsu.edu

Time: TTH 1:30pm – 2:50pm

Location: PFT 1200

TA/Grader: TBD

Office Hours: PFT 3209N, Thursday 9:00am – 12:00pm, or by appointment

Catalog Description: Credit will be given for only one of the following: CSC 1240, 2262, CSC 2533 or IE 2060. 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.: MATH 1552 and CSC 1254 or CSC 1351.

Textbook: Elementary Numerical Analysis, 3rd Edition, Atkinson and Han, Wiley (2004)

Primary Topics:

1. Computer Arithmetic and Errors
2. Taylor Approximations
3. Root Finding
4. Interpolation
5. Numerical Differentiation & Integration
6. Linear Equations
7. Numerical Linear Algebra
8. Differential Equations and Applications

Grading:

- Homework: 30%
- Quizzes: 24%
- Midterm Exam: 18%
- Project: 18%
- Final Exam: 20%

Letter grades will be assigned according to the following table. Your end of semester numerical grades are rounded up to whole numbers (for example, 94.49 = 94, 94.50 = 95)

Numerical Score	Grade
100 – 98	A+
97 – 94	A
93 – 90	A-
89 – 87	B+
86 – 84	B
83 – 80	B-

Numerical Score	Grade
79 – 77	C+
76 – 71	C
70 – 68	C-
67 – 65	D+
64 – 62	D
61 – 58	D-
57 and below	F

Exam Score Adjustment: If the project score is greater than the midterm exam score, your midterm exam grade will be replaced with the average of your midterm exam and project score. For example, if you receive a 70% on the midterm exam and a 90% on the project, your new midterm exam grade will be a 80%.

Additional Notes About Homework:

- There will be 7 homework assignments, however, the 1 with the lowest score will be dropped, thus the homework grade will be based on 6 homework assignments each worth 5% of the grade.
- Late Policy: 10% per day, up to two days, will be deducted from the score for late homework. Afterwards, the score will drop to a 0% for that homework.
- Gradescope: Homework assignments will be turned in using Gradescope. The instructor will add you to Gradescope for the course.

Notes About Quizzes:

- There will be a total of 4 quizzes each worth 6% of your grade, 2 in the period before the midterm exam and 2 in the period between the midterm and the final exam.
- The date of an upcoming quiz will be announced at least one week prior to that date.
- Make-up Policy: If you have a valid reason for missing a quiz (valid as defined by LSU policy PS-22), please communicate this as early as possible, prior to missing the quiz.

Exam Schedule:

The following dates are tentative and subject to change depending on timing:

- Midterm Exam: March 7, 2024
- Final Exam: Refer to LSU final exam schedule.

Notes About Exams:

- We will review material during the lecture immediately prior to the exam period.
- Make-up Policy: If you have a valid reason for missing an exam (valid as defined by LSU policy PS-22), please communicate this as early as possible, prior to missing the exam.
- **Students must present a valid LSU student ID when turning in their exam.**

LSU student code of conduct

The LSU student code of conduct explains student rights, excused absences, and what is expected of student behavior. Students are expected to understand this code as described here. Any violations of the LSU student code will be duly reported to the Dean of Students.

Expectations

LSU's general policy states that for each credit hour, you (the student) should plan to spend at least two hours working on course related activities outside of class. Since this course is for three credit hours, you should expect to spend a minimum of six hours outside of class each week working on assignments for this course. For more information see:
<http://catalog.lsu.edu/content.php?catoid=12&navoid=822>.

Disability Services

Louisiana State University is committed to providing reasonable accommodations for all persons with disabilities. The syllabus is available in alternate formats upon request.

If you have a disability that may have some impact on your work in this class and for which you may require accommodations, please see a [staff member in Disability Services](#) so that such accommodations can be considered. Students that receive accommodation letters, please meet with me to discuss the provisions of those accommodations as soon as possible.

Academic Success

The primary ingredients of your academic success are attending class, managing your time efficiently, taking good notes, and developing good critical thinking and communication abilities. LSU has a number of excellent resources that will assist you in developing these skills. The place to begin is the Center for Academic Success. The CAS offers guidance on what learning strategies are best suited to your talents, tutoring in the basic subjects, and workshops on a variety of topics, from note taking to time management. Communication Across the Curriculum assist students in developing the communication skills necessary for academic and professional success. Finally, with respect to professional success, the LSU Olinde Career Center can assist you in choosing a major and a profession that best suits your talents and passions and help you develop a four-year career plan to ensure success when you graduate from LSU.

Diversity, Equity & Inclusion Statement

We believe diversity, equity, and inclusion enrich the educational experience of our students, faculty, and staff, and are necessary to prepare all people to thrive personally and professionally in a global society. Therefore, LSU is firmly committed to an environment that affords respect to all members of our community. We will work to eliminate barriers that any members of our community experience. To make LSU a place where that can happen, we must recognize and reflect on the inglorious aspects of our history. We now acknowledge the need to confront the ways racism, sexism, ableism, ageism, classism, LGBTQ+ phobia, intolerance based on religion or on national origin, and all forms of bias and exploitation have shaped our everyday lives. We accept personal and professional responsibility to eliminate bias and oppression wherever they are found. We understand our obligation to speak up when we see bias whether it be in our teaching, study, or daily work. Our community will educate themselves proactively and continuously about how to intervene and bring bias to the attention of others with commitment and compassion. We will hold ourselves accountable for our actions and inactions, and for maintaining intentional, measurable, and meaningful efforts to enhance diversity, equity, and inclusion, including through ongoing evaluation of our policies, practices, and procedures.

Nondiscrimination, Sexual Harassment, & Title IX

LSU provides equal opportunity for all qualified persons in admission to, participation in, or employment in the programs and activities which the university operates without regard to race, creed, color, marital status, sexual orientation, gender identity, gender expression, religion, sex, national origin, age, mental or physical disability, or veteran's status. LSU has implemented a procedure to address complaints for those who believe they have been subjected to discrimination and/or harassment in violation of this policy. Please know that your instructors are here to support you and listen to your experience. We also want you to know that we are mandatory reporters and must report what we know to the Office of Civil Rights and Title IX. All LSU employees, with few exceptions, are required to report instances of sex- or gender-based

harassment and discrimination, including sexual misconduct and power-based violence (e.g., sexual assault, stalking, dating violence, domestic violence, sexual exploitation, retaliation, etc.) for which they may not be the victim, but of which they are aware. The Office of Civil Rights & Title IX is the LSU office responsible for investigating complaints regarding any type of discrimination, sexual harassment, or power-based violence. The Office of Civil Rights & Title IX is located in 118 Himes Hall and the phone number is (225) 578-9000. If you are aware of an individual who has been victimized, you are encouraged to contact the Office of Civil Rights & Title IX or file an online report by visiting LSU's Domestic & Sexual Violence Support and Reporting website and clicking the Report an Incident box. If you have been assaulted, harassed, or a victim of violence, we encourage you to contact the Office of Civil Rights & Title IX. Please reach out for help immediately. Some excellent resources available to Baton Rouge residents include:

- STAR (Sexual Trauma Awareness and Response; 24/7 hotline: (855) 435-STAR (7827)
- IRIS Domestic Violence Center; 24/7 hotline: (800) 541-9706
- The Lighthouse Program; (225) 578-5718
- VIA LINK; (800) 273-TALK (8255) [national line but answered from New Orleans]

National resources include:

- RAINN (Rape, Abuse & Incest National Network); 24/7 hotline: (800) 656-4673
- National Sexual Violence Resource Center

For additional information, visit www.lsu.edu/civil-rights the Office of Civil Rights & Title IX and review PM-73 (Prohibiting Power-based Violence, including Sex- and Gender-based Harassment and Discrimination, and Sexual Misconduct).