ENG-130L-501 Spring 2026

Introduction to Numerical Computing
Eng 130L-501, Spring 2026
Zoom/Online - live sessions
Time: MW 11:00am- 12:15 pm

Instructor: Dr. Saulo Orizaga.
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IMPORTANT: Hours of email communication M-F, 8:00 am to 5:00 pm.

Mode of Instruction: **The lectures will be mainly via Live Zoom Sessions, occasionally we may pre-record lectures**. All lecture notes will be posted on Canvas. Instructor may give reading assignments to further the understanding of a topic (re-enforce the material). ***You will be required to have your webcam on for the entire duration of each exam/quiz.***

Course Description: An introduction to the use of computing resources to solve engineering problems. Students will learn the fundamentals of computer programming and will also learn to use a numerical computing environment such as MATLAB. Applications to engineering problems in various disciplines will be explored.

Course Objectives: Students will be able to use computing tools to solve engineering problems in advanced courses in their engineering curriculum and will also be prepared to use these tools in the engineering workplace. Student Learning **Outcomes:**

1. Students will be able to write programs at a beginning level in a programming language such as Python. Programs will include using predefined functions, conditional statements, control structures, matrix computations, and graphing and plotting.

2. Students will be able to create, test, and debug beginning-level computer programs.

3. Students will be able to understand the basic features of MATLAB (or other equivalent problem-solving software) including data types, basic mathematical and logical expressions, arrays and vectors, matrices, and file manipulation.

4. Students will be able to use computing systems to generate graphs and plots of engineering data.

5. Students will be able to compose structured programs using symbolic algebra, equation solving, differentiation and integration.

Student Outcomes addressed by course:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

UNM Canvas: All course materials, communication, and grades will be posted on our Canvas course site.

Recommended Matlab reference: “Matlab Guide" by D.J. Higham and N.J. Higham, SIAM.

Grading Course score composition: Homework (50%); **Exams** (30%;) **Class Participation (*contributions to class discussions including Canvas discussions*) and Attendance (quizzes)** (20%);

Quizzes: These will be done in class and will contribute to Homework grades (or **class participation** - ***no make up quizzes are allowed - we will drop the 2 lowest quiz grades - for emergency type of situations)*.**

Course grade scale:

Grade	F	D	D+	C–	C	C+	B–	B	B+	A–	A
% Grade	[0,60)	[60,66)	[66,69)	[69,72)	[72,76)	[76,79)	[79,82)	[82,86)	[86,90)	[90,92)	[92,100]

Auditing: Auditing students must report their auditing status to the instructor immediately.

Homework:

- Homework is due during class on the assigned due date. ***No late homework will be accepted.***
- All homework must be done neatly with work shown to receive full credit. Any grading issues should be submitted in writing (online) within a week of the return date. Assigned homework and homework grades will be posted on Canvas.

- You are welcome to work in groups, but individual work is required for all graded assignments.
- **Computer codes and write-ups have to be your own** (identical or nearly identical solutions will receive zero credit). If information obtained elsewhere is used for a homework problem, **you must give due credit in your write-up.** Submitting solutions obtained from third parties is strictly prohibited.
- Actual submission: **All homework assignments will be submitted as a project/report. You must include two files on Canvas - 1 the actual project.pdf file + a zip folder containing all files (mfiles and functions) used to complete your work. Do not forget a readme.txt file explaining what the code does. The submission should resemble a report that is self-contained and that explores all homework tasks with summaries of your findings. (Cover Page, Problem Description, Summary and Findings/Conclusions). You should also provide graphical representation (when possible) to help demonstrate your findings/summaries. This should be a high quality report - cover page, worked out problems, computer problems, numerical results, plots, summaries and conclusions.**
- **We have no late homework policy - late homework will not be accepted - make sure you submit on time. Submit at least 2 hours before deadline to avoid**

submissions issues. To be fair with classmates and our grader, always submit on time.

- **Hours of communication M-F, 8:00 am to 5:00 pm.**

Policies:

- Read your textbooks (You have several). You are responsible for all material in the course content whether it is discussed or not. You are also responsible for the material presented in class.
- It is your responsibility to **attend class**, be current with homework and topics.
- Students are strongly encouraged to attend classes on time. Students are responsible for any class announcements. **Attendance and participation** will be included in your final grade.
- Respect your classmates and the instructor!
- Contribute for a great/wonderful class atmosphere and learning environment.
- **No laptops/computers, music or games during the class time! Cell phones must be switched to be "vibrate".**

MATLAB: To download MATLAB go to (UNM software support). It is also on the computers in the computer pods.
Useful links:
Mathworks MATLAB OnrampLinks to an external site.
Owen's Matlab TutorialLinks to an external site.
MATLAB Basics: a Tutorial
Fundamentals of Matlab

Your current percentage grade will always be visible in your Canvas page. A comprehensive 90%, 80%, or 70% grade will guarantee a passing grade of A,B or C, respectively, in the course. However, a grade below 70% does not mean you will fail the class. While your instructor will give general feedback on grades in class, you should make sure to contact your instructor directly anytime you want to know more closely what your standing in the course is. In particular, you need to contact your instructor before deciding to drop the course.

Attendance: Attendance at UNM is mandatory and engagement in the class (regular homework completion, questions/comments inside and outside class, and in office hours) is necessary to succeed in this course. If you need to miss class, please let your instructor know. ***Your Instructor may drop you from the course if you have more than 4 absences***. Please make sure to stay in touch with your instructor in case of special circumstances that temporarily prevent you from participating as needed.

Homework: Weekly or bi-weekly homework sets are due on the posted due date, by 11:59pm, to be submitted through Canvas. You will need a scanning app for your mobile device to scan your solutions as a pdf file. You are encouraged and welcome to work together on the homework. However, the write-up you hand in must be your own work, in your own words. After you have had all your questions answered, you need to be able to do all problems on your own.

Work outside class: Please note that UNM requires a minimum of two hours work outside of class for each credit hour. Only with daily work and good use of your resources will you profit the most and succeed in this class. This is a four credit-hour course, with three lectures and one recitation for fifteen

weeks during the semester. Please plan for a minimum of eight hours of out-of-class work each week: 2 hours after each lecture and 2 hours on the weekend to finalize the homework. The homework is set up to make it clear which problems to work on after each lecture.

Grade Mode Change and Withdrawals: Deadlines to make changes to your registration status are published by the Office of the Registrar in the schedule of classes: http://registrar.unm.edu. To change grade mode or to withdraw after the deadlines posted therein, you need to (1) talk to your instructor to fully understand your standing in the class, and (2) meet with your advisor and discuss the best path for you to proceed, as well as all consequences for your studies. Please ask your advisor to email your instructor, with copy to you, of the final decision. For grade mode changes you may also be required to have your instructor sign a grade mode change form: http://www.unm.edu/~unmreg/images/Forms/EnrlAuth-GradeMode.pdf , and your instructor will accommodate the change. Please note that you cannot request a withdrawal from the course after 5 pm on the Friday before final exams week.

Academic dishonesty:
Academic dishonesty will be reported to the Dean of Students.

COVID-19 - Vaccination and Indoor Masking: COVID-19 Health and Awareness. UNM is a mask friendly, but not a mask required, community. To be registered or employed at UNM, Students, faculty, and staff must all meet UNM's Administrative Mandate on Required COVID-19 vaccination. If you are experiencing COVID-19 symptoms, please do not come to class. If you have a positive COVID-19 test, please stay home for five days and isolate yourself from others, per the Centers for Disease Control (CDC) guidelines. **If you do need to stay home, please communicate with your instructor**; your instructor can work with you to provide alternatives for course participation and completion. UNM faculty and staff know that these are challenging times. Please let us know that you need support so that we can connect you to the right resources and please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.
Support: Student Health and Counseling (SHAC) at (505) 277-3136. If you are having active respiratory symptoms (e.g., fever, cough, sore throat, etc.) AND need testing for COVID-19; OR If you recently tested positive and may need oral treatment, call SHAC. LoboRESPECT Advocacy Center (505) 277-2911 can offer help with contacting faculty and managing challenges that impact your UNM experience.

Accommodation Statement: Accommodations: UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact Accessibility Resource Center at arcsrvs@unm.edu or by phone at 505-277-3506.

Title IX: Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus. Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: https://policy.unm.edu/university-

policies/2000/2740.html.
Support: LoboRESPECT Advocacy Center and the support services listed on its website, the Women's Resource Center and the LGBTQ Resource Center all offer confidential services and reporting.

Citizenship and/or Immigration Status: All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: http://undocumented.unm.edu/.

Land Acknowledgement: Founded in 1889, the University of New Mexico sits on the traditional homelands of the Pueblo of Sandia. The original peoples of New Mexico Pueblo, Navajo, and Apache since time immemorial, have deep connections to the land and have made significant contributions to the broader community statewide. We honor the land itself and those who remain stewards of this land throughout the generations and also acknowledge our committed relationship to Indigenous peoples. We gratefully recognize our history. Faculty Resource: Information provided by UNM's Division for Equity and Inclusion can support building an inclusive classroom, https://diverse.unm.edu/education-and-resources/programs/index.html.

IMPORTANT NOTICE: The instructor keeps the right to make necessary changes to the syllabus for this course during the whole semester.