

**Course Title:** *Introduction to Engineering Computing*

**Instructor:** Nancy Engler

**Office:** VA room 134

**Phone:** 925-8634

**Course Number:** ENG 130L 501 CRN# 71495

**Class Hours:** T/Th 10:30-11:45 VB&T room 124

**and W 10:30-11:20 in VB&T room 124 or Zoom:**

<https://unm.zoom.us/meeting/92803090657>

**Instructor Led Help Sessions/Office Hours:** AA134 or online via Zoom link:

<https://unm.zoom.us/my/profengler> Available T/W/TH 11:45-1:30 and by appointment and W 4:00-5:30 by Zoom link above

**Division Chair:** Elaine Clark, [ewclark@unm.edu](mailto:ewclark@unm.edu)

**Course Credits:** 3

**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.*

ABET Student Outcomes addressed by course:

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

**Textbooks/Supplies/Materials/Equipment/ Technology or Technical Requirements:**

Title	Author	Publisher	ISBN	Price to Student	Duration
MATLAB for Engineers (Subscription)	Holly Moore	Pearson Higher Education	9780134588261	\$29.18	LIFETIME

You will need reliable access to a computer or tablet, and Internet. A computer (laptop or desktop) is recommended. Preferred browsers are Chrome, Firefox, or Safari. The preferred operating systems are Windows or Apple, and access to UNM Learn requires use your UNM NetID to log into UNM Learn. You may access it directly via [learn.unm.edu](http://learn.unm.edu)

**Course Requirements:**

*There will be weekly programming assignments (50% of final grade) and two mid-term exams with an in-class and/or take-home component (each 25% of final grade).*

**Grading:**

*Final letter grades will be assigned as follows:*

A+	100
A	93-99
A-	91-92
B+	89 - 90
B	83-88
B-	81-82
C+	79-80

<i>C</i>	73-78
<i>C-</i>	71-72
<i>D+</i>	69-70
<i>D</i>	63-68
<i>D-</i>	61-62
<i>F</i>	0-60

### **Course Schedule/Topics (Subject to change)**

Week 1: Organizational; Introduction to computing and MatLab

Week 2: Python scripting; Expressions and types; Control flow

Week 3: Procedural abstraction

Week 4: Strings, lists, and dictionaries

Week 5: Strings, lists, and dictionaries

Week 6: Modules; Packages

Week 7: Algorithm design

Week 8: Algorithm design

Week 9: Objects and classes

Week 10: Objects and classes

Week 11: Plotting and graphics

Week 12: Plotting and graphics

Week 13: Numerical computing

Week 14: Numerical computing

Week 15: Scientific models and simulations

### **Accommodation Statement:**

**Equal Access:** In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information.

If you need an accommodation based on how course requirement interacts with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the Disability Services Office for assistance in developing strategies and verifying accommodation needs. If you have not previously contacted them, I encourage you to do so.

If you are a Valencia campus student, contact Equal Access Services at Valencia Campus, Cheryl Dilger at (505)925-8910 or [Valencia Student Services](#). If you are a main campus student, you can receive documentation from the main campus Accessibility Resource Center. I will not guarantee accommodation without the appropriate documentation.

**Collegial Behavior:** Since I assume you are all adults, I will expect respectful adult behavior. Engaging in disruptive or unruly behavior could result in your being asked to leave, at which time you will be counted absent, and a referral will be sent to the Associate Dean of Student Services. Continuing to behave in this way could result in your being dropped from the course. Disruptive or unruly behavior includes but is not limited to:

texting or talking on your cell phone at any time during class,  
continually talking with your neighbor when we are not working on a group activity,  
working on homework from another class,  
reading material or watching media on a mobile device not related to this course or at a time that is inappropriate,  
refusing to participate in the class activities.

### **Academic Integrity**

Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy:

<https://policy.unm.edu/regents-policies/section-4/4-8.html>. The policy states:

*Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.*

Academic Dishonesty is defined as:

*"Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.*

**Title IX Statement:** In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg. 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>

**COVID-19 Statement:** [UNM Administrative Mandate on Required Vaccinations](#)

All students, staff, and instructors are required by [UNM Administrative Mandate on Required Vaccinations](#) to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the [UNM vaccination verification site](#). Students seeking medical exemption from the vaccination policy must submit a request to the [UNM verification site](#) for review by the UNM [Accessibility Resource Center](#). Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the [UNM verification site](#) for review by the [Compliance, Ethics, and Equal Opportunity Office](#). For further information on the requirement and on limited exemptions and exemptions, see the [UNM Administrative Mandate on Required Vaccinations](#).

[UNM Requirement on Masking in Indoor Spaces](#)

All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios, and meetings on UNM campuses, see [masking requirements](#). Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. With the exception of the limited cases described above, students and employees who do not wear

a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions.

Communication on change in modality: The university may direct that classes move to remote delivery at any time to preserve the health and safety of the students, instructor, and community. Please check your email and your UNM Learn site regularly for updates about our class, and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates about COVID-19 and the health of our community.

Acceptable masks and mask wearing in class: A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable, as are disposable medical masks, KN95, KF94, FFP1 and FFP2 masks. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the university mask requirement and endangers others.

Consequences of not wearing a mask properly: If you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasion, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask, class will be dismissed for the day to protect others and you will be dropped from the class immediately.

The instructor will try to have a few disposable masks available in the classroom on a first-come, first-served basis.

### **FOR MILITARY-CONNECTED STUDENTS**

There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main campus at 505-277-3181, or by email at [vrc@unm.edu](mailto:vrc@unm.edu). The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she are not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information.