

**McLennan**  
C O M M U N I T Y  
**COLLEGE**

WACO, TEXAS

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**COURSE SYLLABUS**  
**AND**  
**INSTRUCTOR PLAN**

**ENGINEERING PROGRAMMING**

**ENGR 2304 87**

**DR. APRIL K. ANDREAS**

**NOTE: This is a 16-week, Online course.**

**COVID 19 Notice:**

McLennan Community College is committed to providing you with every resource you need to reach your academic goals including your safety. We will continue to monitor the evolving situation with COVID 19 and adjust our safety guidelines to make sure we offer a safe environment for you and our faculty. Please make sure to consult your faculty and the MCC website at <https://www.mclennan.edu/crisis-management/coronavirus-updates/index.html> on any changes to these guidelines.

# ENGINEERING PROGRAMMING

ENGR 2304 87

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## **Course Description:**

Introduction to computer programming using a modern programming language. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes coverage of language syntax, and data and file structures. Semester hours 3 (3 lec, 2 lab)

## **Prerequisites and/or Corequisites:**

Students must have completed MATH 2413 – Calculus I.

## **Course Notes and Instructor Recommendations:**

*As future engineers, you need to get used to the fact that not everything you're going to need is going to be covered in class. We'll cover the big stuff, but some of the details are going to be left to you. You will need to read the book as we go along. Expect to spend hours and hours on homework and other preparation for this class.*

*I'm going to assume that you know all of the math that is a prerequisite for this course, including algebra, precalculus, and trigonometry. If you need a refresher on that material, it is your responsibility to get it, although I can certainly help you locate resources outside of class time.*

## **Instructor Information:**

Instructor Name:	Dr. April K. Andreas
MCC E-mail:	<a href="mailto:aandreas@mcclennan.edu">aandreas@mcclennan.edu</a>
Contact information:	254-299-8130, Science 221
Office Hours:	<a href="https://calendly.com/akandreas">https://calendly.com/akandreas</a>
Department Website:	<a href="http://www.mcclennan.edu/engr/">http://www.mcclennan.edu/engr/</a>

## **Required Text & Materials:**

- **Required**
  - Students must purchase a Student Version of Matlab. If you prefer, you can purchase from The MathWorks at [http://www.mathworks.com/academia/student\\_version/](http://www.mathworks.com/academia/student_version/). Cost is approximately \$49 or \$99 (recommended for EEs) when purchasing online. We will be using the symbolic toolbox in this class, so if you buy the \$49 version, you'll still need to pay the \$10 to add the symbolic toolbox.

**MCC Bookstore Website:** <http://www.mclennan.edu/bookstore/>

**Additional requirements:**

*MCC Engineering uses Slack for communication. All major course announcements will be posted in Slack – failure to check Slack will result in you missing important information. Also, anything we hear about jobs, scholarships, speakers, etc., will also be posted to Slack in the #general channel.*

Slack is free and used in the professional community as a workflow management system, so it is good to gain experience with the tool. All “general questions” like “I’m stuck on problem 5” will be directed to Slack, which will allow you and your classmates to support each other, especially in “time-crunch” situations. (Your classmates are a lot more likely to be up at 3 am doing homework than I am going to be checking email.) Always be respectful and professional in your participation.

Please bear in mind that Slack is an open communication tool. Please do not ask for or reveal personal information through the tool. Note that anything you post in Slack in channels will be viewable by other channel participants. Do not post anything about personal grades, due dates, or personal issues. Do not post your own correct solutions to assignments, but you can post incorrect work and ask if anyone can see where you went wrong.

Slack can be used on both a desktop computer and as an app. For more information about Slack in general, visit <https://slack.com/>. You will be invited to our class channel via your MCC student account. Detailed guidelines for Slack are on Brightspace and on Slack itself.

Campus Carry Reminder: According to our new campus carry policy on concealed handguns: “A license holder may carry a handgun in a manner such that it must be close enough to the license holder that he or she can grasp it without materially changing position.” Keep this in mind on exam days, during group work, or at other times when moving about the classroom. During exams, you will have to put all backpacks, purses, etc., away from you and against the wall of the classroom for the duration of the exam.

**Methods of Teaching and Learning:**

Students will learn through lecture and reading, as well as through work on homework, labs, a project, and exams. Additional methods may be used as opportunities present themselves.

**Course Objectives and/or Competencies:**

Upon successful completion of this course, the student will be able to demonstrate the following learning outcomes:

1. Write and execute a simple script using Matlab.
2. Use built-in Matlab functions to solve engineering problems.
3. Write and execute a simple program using Matlab.
4. Write and execute a Matlab program using a selection statement (if/else/switch).
5. Write and execute a Matlab program using a repetition statement (do/while/for).
6. Write and execute a Matlab program with a user defined function.
7. Write and execute a Matlab program using arrays and matrices.
8. Write and execute a Matlab program that reads and writes from data files.
9. Write and execute a Matlab program that displays information to a user as a graph (plot).
10. Explore advanced problem-solving concepts in Matlab, such as numerical analysis, symbolic mathematics, or advanced graphics.

**Course Outline or Schedule:**

You are responsible for everything listed in the detailed calendar below. Refer to the Course Objectives above to see how they relate to assessments and assignments. Any changes in this schedule will be announced in class, on Slack, or through email. Lectures should be watched on or before the date indicated in the calendar.

***You must be available for on-campus proctored testing on testing days. I will provide multiple sign-up opportunities, that will consist of two-hour time slots.***

If we have to change the calendar below regarding testing, I will give you at least one full week's notice to make sure you can re-arrange your schedule.

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<b>Week Starting</b>	<b>Review Videos and Complete Lecture Checks By Thursday, 11:59 pm</b>	<b>Also due by Thursday, 11:59 pm</b>	<b>Homework Due 11:59 pm</b>
Mon, Jan 9	<ul style="list-style-type: none"> <li>• Getting Started, Basic Operators</li> <li>• Lecture Check 1</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 1</li> </ul>	Mon, Jan 16
Mon, Jan 16	<ul style="list-style-type: none"> <li>• Basic Input &amp; Output</li> <li>• LC 2</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 2</li> </ul>	Mon, Jan 23
Mon, Jan 23	<ul style="list-style-type: none"> <li>• Built-in Functions</li> <li>• LC 3</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 3</li> </ul>	Mon, Jan 30
Mon, Jan 30	<ul style="list-style-type: none"> <li>• Matrices &amp; Pass-by-value</li> <li>• LC 4</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 4</li> </ul>	Mon, Feb 6
Mon, Feb 6	<ul style="list-style-type: none"> <li>• User-created Functions</li> <li>• LC 5</li> </ul>	<p style="text-align: center;"><b>Test 1: Unit 1</b> <b>Thu, 2/9. By sign-up.</b></p>	Mon, Feb 13
Mon, Feb 13	<ul style="list-style-type: none"> <li>• Advanced Input &amp; Output</li> <li>• Logic Operators</li> <li>• LC 6</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 5</li> </ul>	Mon, Feb 20
Mon, Feb 20	<ul style="list-style-type: none"> <li>• Selection Structures</li> <li>• LC 7</li> </ul>	<ul style="list-style-type: none"> <li>• Lab 6</li> <li>• <i>Early deadline for project approval</i></li> </ul>	Mon, Feb 27
Mon, Feb 27	<ul style="list-style-type: none"> <li>• Appdesigner</li> <li>• LC 8</li> </ul>	<p style="text-align: center;"><b>Test 2: Unit 2</b> <b>Thu, 3/2. By sign-up.</b> <i>Final deadline for project approval</i></p>	Mon, Mar 13
Mon, Mar 6	<ul style="list-style-type: none"> <li>• Spring Break</li> </ul>		
Mon, Mar 13	<ul style="list-style-type: none"> <li>• Plotting</li> <li>• LC 9</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Project Meeting 1 Deadline, upload project progress</i></li> </ul>	Mon, Mar 20
Mon, Mar 20	<ul style="list-style-type: none"> <li>• Repetition Structures</li> <li>• LC 10</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Project Meeting 2 Deadline, upload project progress</i></li> </ul>	Mon, Mar 27
Mon, Mar 27	<ul style="list-style-type: none"> <li>• Data Types &amp; Arrays</li> <li>• LC 11</li> </ul>	<p style="text-align: center;"><b>Test 3: Unit 3</b> <b>Thu, 3/30. By sign-up.</b></p>	Mon, Apr 3
Mon, Apr 3	<ul style="list-style-type: none"> <li>• Symbolic Algebra</li> <li>• LC 12</li> <li>• <i>Beta Test version on BS Thread due <b>Wednesday</b></i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Beta Test Reviews</i></li> </ul>	Mon, Apr 10
Mon, Apr 10	<ul style="list-style-type: none"> <li>• Presentations</li> </ul>		Mon, April 17 Presentations
Mon, Apr 17	<ul style="list-style-type: none"> <li>• Presentations</li> </ul>		Mon, April 24 Presentations
Mon, Apr 24	Instructor Choice	<p style="text-align: center;"><b>Test 4: Unit 4</b> <b>Thu, 4/27. By sign-up.</b></p>	

***The Final Exam is on Tuesday, May 2, by sign-up***

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### **Course Grading Information:**

Category	Percentage
Lecture Checks	10%
Homework	25%
Labs	5%
Tests	40%
Project	20%
<b>Total</b>	<b>100%</b>

**A: 90%+      B: 80% – 89%      C: 70% – 79%      D: 60% – 69%      F: 0% – 59%**

**Lecture Checks.** *Lecture Checks are due by 11:59 pm on Thursdays.* These can be done on your own. They will test knowledge of syntax, programming outcomes, and other material covered in class. These will be short answer, true/false, or multiple choice.

**Homework:** *Homework is due by 11:59 pm on Mondays.* As a note, I may or may not grade every single problem on an assignment. You should ask for clarification if you're stuck on a homework problem.

This class has integrated Supplemental Instruction (SI). You are required to attend one SI session per week. The SI will work to ensure the schedule is set up so everyone has the opportunity to attend. One homework problem each week will only be available by going to SI. (Attendance at SI will be taken. If you attempt to submit an SI problem without going to the SI session, you will be referred to the Academic Integrity office for cheating.)

**Labs.** *Labs are due by 11:59 pm on Thursdays.*

**Tests:** Five tests will be given during the semester (including the final). Dates and times are indicated in the course calendar. No assistance (phones, friends, calculators, etc) are allowed for exams. No tests may be retaken. All tests must be taken with closed books and without any notes or formulas. You must complete each test during the time given. If you are late for class, you forfeit that amount of time to work. Makeup exams will only be given in rare cases, following the policy outlined elsewhere in the syllabus. The last test is the comprehensive final, given during finals week. The lowest test grade will be dropped.

**Project:** You must complete a project at the end of the semester. You'll be able to do this in pairs, or independently, as you so choose. More details will be provided in class.

**Learning Lab.** The Learning Lab in the Science Building, room 135, has many reference books available, and you may find some success studying there. There are also five computers that have Matlab installed, which you can use to work on your homework.

**Academic Dishonesty.** Any student that is found guilty of academic dishonesty such as cheating, plagiarism, or collusion on any problem on an assignment, quiz, or test will receive a grade of zero on the entire assignment, quiz, or test. For repeated violations (including multiple violations on the same assignment, quiz, or test) and/or egregious violations (including violations on the project), a guilty student can be assigned a failing grade in this course and can be recommended for suspension from the McLennan Community College District.

### What Constitutes Cheating in a Programming Class?

It's actually relatively straight-forward. If it would be cheating in an English class, for example, it's cheating in programming. If you basically copy someone else's code and just change a few variable names, capitalize a few things, and/or add some spaces in there, it's cheating. If you copy code from the Internet and turn it in as your own, it's cheating. If you pay for access to homework solution website, and then turn in the answer they give you, it's cheating.

For the purposes of this class, if two or more people have code that looks, to the professor's judgment, to be unacceptably similar, all students involved will lose most, if not all, points on either just that problem, or on the entire assignment, depending on severity.

Programming is just as unique as writing. It is clear when students plagiarize code or copy off of each other because there are so many different ways to solve a problem. For example, consider the two following submissions:

Student A	Student B
<pre>X = Y + 3 Z = menu('Find the chicken', 'one', 'two', 'three')</pre>	<pre>X_Var = Y_Var + 3 Z_Var = menu('Find chicken', 'first', 'second', 'third')</pre>

If this kind of similarity prevails throughout the homework, I will assume the students did not do original work and they will be reprimanded for cheating.

### How to Avoid Cheating

There are some very easy ways to avoid the suspicion of cheating.

1. Work completely by yourself. (Not entirely realistic and not actually the best way to learn.)
2. Work with a trusted friend, but always follow these guidelines:
  - Never work on writing the actual code together.

- Talk about how to solve the problem, general strategies, etc.
  - Each person should always work on their own code.
  - If one person is stuck, the person who understands it has a few options:
    - Look at the other person's code for obvious mistakes, misspellings, syntax errors, etc. Point out any mistakes to the person who is stuck, but do not fix it for them.
    - If the other student doesn't seem to know where to get started, ask leading questions, like, "So what steps are you repeating over and over that need to be in a loop?" or "So if you know you're doing a conversion here, do you need to multiply or divide?"
  - If both people are stuck, go talk to the professor.
3. Never ever ever ever ever give someone else your code "just to look at."
  4. Do not go onto "homework solutions" websites. Paying for answers is still cheating. (And honestly, a lot of those answers are wrong.)
  5. Use Google to figure out concepts, not to find code.
    - It's okay to Google "Plotting shapes with polar coordinates in Matlab" to find an explanation on how to use polar coordinates and general strategies
    - It's not okay to use Google to find code that you cut-and-paste into your own scripts.
    - If you're afraid you may not know where the line is, Google "Plotting shapes with polar coordinates" (without saying "in Matlab"). This way you hopefully won't run into any code that will tempt you.
  6. On more complex projects, if you find that you have to use code that you haven't written yourself, first email your professor to ask if using the code is okay. Then, when you write your program, you will need to include a credit to the person who actually wrote it. Never use code that you didn't write without first discussing it with your professor.

**Late Work, Attendance, and Make Up Work Policies:**

MCC allows for "excused" absences caused by (1) authorized participation in official College functions, (2) personal illness, (3) an illness or a death in the immediate family, or (4) the observance of a religious holy day. It is your responsibility to let me know the reason for an absence the day you return to campus and provide sufficient documentation (doctor's note, email from coach, etc.).

Whether you are in class or not, you are expected to meet all deadlines, unless you have documentation of an MCC-approved absence. Work ahead to stay on top of things.

***Per MCC policy, you may be dropped from the class if you are absent for 25% of the class prior to the drop date. An absence is defined as any week in which no graded material is submitted. For this class, 25% is four weeks.***

If you wish to drop this class, you must email me from your MCC student account before 5 pm on the last day for student-initiated drops, with the request “Please drop me from COURSE ID and SECTION NUMBER.” An email that says something like, “I would like to drop...” or, “I was thinking about dropping...” or, “I was wondering if I should drop...” will **not** be considered a drop request. (*Just like saying, “I would like to get married,” does not mean anyone is going to automatically marry you.*) If the email does not come from your student account, or if the request is verbal, I cannot drop you. Alternatively, there is a form you can fill out and have me sign before 5 pm on the last day for student-initiated drops. (make an appointment to ensure I am on campus to provide the signature). After submitting your request, you must verify the drop was processed, notifying me in writing within 48 hours of your original request if it was not. Otherwise, you will stay on the roster for the rest of the semester and be awarded the grade earned. Drops past the drop date are only done in documented, extreme, life-crisis circumstances, which usually involve withdrawing from school entirely.

### **Student Behavioral Expectations or Conduct Policy:**

Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of this educational opportunity.

### **[Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)**

**(<https://www.mclennan.edu/highlander-guide/policies.html>)**

Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.

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Updated 11/04/2022

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## **ACADEMIC RESOURCES/POLICIES**

### **Accommodations/ADA Statement:**

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit [www.mclennan.edu/disability](http://www.mclennan.edu/disability).

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

[disabilities@mclennan.edu](mailto:disabilities@mclennan.edu) 254-299-  
8122  
Room 319, Student Services Center

### **Title IX:**

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the acting Title IX Coordinator at [titleix@mclennan.edu](mailto:titleix@mclennan.edu) or by calling, Dr. Claudette Jackson, (Diversity, Equity & Inclusion/Title IX) at (254) 299-8465. MCC employees are mandatory reporters and must report incidents immediately to the Title IX Coordinator. Individuals may also contact the MCC Police Department at (254) 299-8911 or the MCC Student Counseling Center at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at [www.mclennan.edu/titleix/](http://www.mclennan.edu/titleix/). It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the

crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

**Student Support/Resources:**

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

Academic Support and Tutoring is here to help students with all their course-related needs. Specializing in one-on-one tutoring, developing study skills, and effectively writing essays. Academic Support and Tutoring can be found in the Library and main floor of the Learning Commons. This service is available to students in person or through Zoom from 7:30 am - 6:00 pm Monday through Thursday and 7:30 am - 5:00 pm on Friday. You can contact the Academic Support and Tutoring team via Zoom (<https://mclennan.zoom.us/j/2542998500>) or email ([ast@mclennan.edu](mailto:ast@mclennan.edu)) during the above mentioned times.

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact either MCC CREW – Campus Resources Education Web by calling (254) 299-8561 or by emailing [crew@mclennan.edu](mailto:crew@mclennan.edu) or a Success Coach by calling (254) 299-8226 or emailing [SuccessCoach@mclennan.edu](mailto:SuccessCoach@mclennan.edu). Both are located in the Completion Center located on the second floor of the Student Services Center (SSC) which is open Monday-Friday from 8 a.m.-5 p.m.

Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff. To schedule an appointment, go to [https://mclennan.co1.qualtrics.com/jfe/form/SV\\_07byXd7eB8iTqJg](https://mclennan.co1.qualtrics.com/jfe/form/SV_07byXd7eB8iTqJg). Both the Completion Center and Paulanne's Pantry are located on the second floor of the Student Services Center (SSC).

**MCC Foundation Emergency Grant Fund:**

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at [https://www.mclennan.edu/foundation/docs/Emergency\\_Grant\\_Application.pdf](https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf).

**MCC Academic Integrity Statement:**

Go to [www.mclennan.edu/academic-integrity](http://www.mclennan.edu/academic-integrity) for information about academic integrity, dishonesty, and cheating.

**Minimum System Requirements to Utilize MCC's D2L|Brightspace:**

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-andStaffCommons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

**Minimum Technical Skills:**

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

**Backup Plan for Technology:**

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

**Email Policy:**

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails. For more information about your student email account, go to [www.mclennan.edu/studentemail](http://www.mclennan.edu/studentemail).

**Instructional Uses of Email:**

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

**Email on Mobile Devices:**

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email [Helpdesk@mclennan.edu](mailto:Helpdesk@mclennan.edu) for help.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](#)
- [Email Setup for Androids](#)

**Forwarding Emails:**

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email [helpdesk@mclennan.edu](mailto:helpdesk@mclennan.edu).

**Disclaimer:**

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.