Saint Louis University-Madrid Campus
Division of Sciences & Engineering

CSCI-1060: Introduction to Computer Science: Scientific Programming
Syllabus Fall 2017

Meeting Time: TR: 14:30-15:45
Instructor: Fairouz, Medjahed, PhD
Office: Room 205, Padre Arrupe Hall, 1st Floor
Email: fmedjahe@slu.edu

Office hours: Tuesdays 16:00 to 17:00 and upon request (by email)

Course Description: Elementary computer programming concepts with an emphasis on problem solving and applications to scientific and engineering applications using Matlab.

Prerequisite: The official prerequisite is to have taken or to be currently enrolled in Calculus I.

Textbook: Matlab: An Introduction with Applications, 5th edition by Amos Gilat. (free version online)

Other Books: Essential MATLAB for Engineers and Scientists, Fifth Edition 5th Edition by Brian Hahn, Daniel Valentine Ph.D.

Course Objectives:

The course is intended to assist undergraduates in learning the basics of programming in general and programming using MATLAB in particular. Only the very basics of programming in MATLAB will be covered, with the goal of having students become comfortable enough to continue learning MATLAB and other programming languages like Python on their own.

We will teach the students:

- The fundamentals of programming and good programming practices and utilize these skills to solve numerical problems and create numerical algorithms.
- To develop good problem-solving skills by applying problem solving strategies to a variety of engineering problems with MATLAB®.

Topics covered include:

- Basic programming constructs: loops, conditions, functions, input and output.
- Data representation: basic data types, strings, arrays, multi-dimensional array
- Data analysis and visualization (plotting) using Matlab.
- Modeling different system of equations using matlab.

Learning Outcomes

At the end of the course students should:

- Learn a language for expressing computations –MATLAB
- Lear about the process of writing and debugging a program.
- Learn about the process of moving from a problem statement to a computational formulation of a method for solving the problem.
- Learn a basic set of recipes –algorithms for specific problems.
- Learn about how to use computational tools to help model and understand data and their representation.
- Cultivate effective team-work and communication skills through lab work and a design project.

Course Management

- ✓ There will be homework problems assigned weekly. The homework will not be graded, but solutions will be provided and students are expected to check their exercises and come to office hours with any difficulties encountered. The assignments will cover material from the textbook and readings, and will consist of programming assignments.

- ✓ Homework in this course will be returned electronically. Homework assignments are weekly posted in Blackboard.

- ✓ Project: These will focus on applying Matlab techniques to solve real world science and engineering problems.

Tests: There will be two midterm exams, a set of quizzes and a final exam.

1st Mid-Term Exam: October 10.
2nd Mid-Term Exam: November, 7.
Final Exam: Dec 18

Grading System:

Class participation/Lab performance: 10%
Homework and Projects: 30%
Quizzes: 10%
Mid-Term Exams: 20%
Final Exam: 20%

Grading scale:

A: 90-100%
A-: 87-89%
B+: 84-86%
B: 80-83%
B-: 77-79%
C+: 74-76%
C: 70-73%
C-: 66-69%
D: 60-65%
F: < 60%

Note: The grading system may be adjusted as needed at the discretion of the instructor.

Important Dates:

September:
- 4 Mon: First day of classes.
- 17 Sun: Last day to DROP a class without a grade of "W" and/or add a class. Last day to choose audit (AU), or Pass/No Pass (P/NP) Options.
- 29 Fri: Exams for Math- First midterm (2:00-4:30 p.m)

October:
- 12 Thu: Holiday (University closed).
- 13 Fri: University closed.
- 16 Mon: Last day to submit transfer application for Spring semester.
- 10 Thu: First mid-term exam (classtime).
- 30 Mon: Last day to drop a class and receive a "W".

November:
- 1 Wed: Holiday (University closed).
- 2 Thu: Registration for Spring semester begins.
- 9 Thu: Holiday (University closed).
- 7 Tue: Second midterm exam (class time).

December:
- 6 Wed: Holiday (University closed)
- 8 Fri: Holiday (University closed)
- 13 Wed: Final day of classes.
- 18 Mon: Final Exam (from 12:00 to 14:00)

Computer and Cell Phone Policy

Computers will be an integral part of this course, both inside and outside of class. However, out of courtesy to both the instructor and other students, please do not use the lab computers for non-class related activity. In particular, you do not need to be using a computer unless an exercise or in class activity requiring them is in progress.
You are unlikely to need cell phones during the course of lecture. Please ensure that your cell phone is set to vibrate or silent during lecture, and do not send text messages of any kind.

Policies:

(1) Students are encouraged to participate in class discussions and to ask questions.
(2) Announcements may be made during the semester.
(3) Useful information for the course may be found on the web http://myslu.slu.edu under tools then Blackboard Learning System. Direct Access to Blackboard: http://blackboard.slu.edu.
(4) Syllabus, reading and homework problems are subject to change.
(5) Students are responsible to check blackboard for all lecture material, handouts, homework and assigned reading.
(6) It is mandatory to attend all classes unless a reasonable excuse is given.
(7) Make up exams are not given. Students who legitimately miss an exam, due to a doctor's visit or family emergency must provide written documentation of the circumstances. A letter from the university counselor is accepted. Exams that are missed illegitimately result in a score of F.
(8) If for an excused absence a class is not attended, it is the student's responsibility to find out what was covered in class and to secure notes from another student.

Academic Integrity

> *Academic integrity is honest, truthful and responsible conduct in all academic endeavors.* The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.
>
> The governing University-level Academic Integrity Policy can be accessed on the Provost's Office website at: http://www.slu.edu/Documents/provost/academic_affairs/University-wide%20Academic%20Integrity%20Policy%20FINAL%20%206-26-15.pdf. Additionally, SLU-Madrid has posted its academic integrity policy online: http://www.slu.edu/madrid/academics. As a member of the University community, you are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions and appeals. The professor will review these policies during the first weeks of the term: please direct questions about any facet of academic integrity to your professor, the chair of the department of your academic program or the Academic Dean of the Madrid Campus.

Others:

1. Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual misconduct (e.g. sexual assault, sexual harassment, stalking, domestic or dating violence), we encourage you to report this to the University. If you speak with a faculty member about an incident of misconduct, that faculty member must notify SLU's Title IX deputy coordinator, Marta Maruri, whose office is located on the ground floor of Padre Rubio Hall, Avenida del Valle, 28 (**mmaruri@slu.edu;** 915-54-5858 ext. 213) and share the basic fact of your experience with her. The Title IX deputy coordinator will then be available to assist you

in understanding all of your options and in connecting you with all possible resources on and off campus.
If you wish to speak with a confidential source, you may contact the counselors at the SLU-Madrid's Counseling Services on the third floor of San Ignacio Hall (**counselingcenter-madrid@slu.edu**; 915-54-5858 ext. 230) or Sinews Multipletherapy Institute, the off-campus provider of counseling services for SLU-Madrid (**www.sinews.es**; 91-700-1979) To view SLU-Madrid's sexual misconduct policy and for resources, please visit the following web address: **http://www.slu.edu/Documents/Madrid/campus-life/SLUMadridSexualMisconductPolicy.pdf**.

2. In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

- Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.
- University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to **http://www.slu.edu/madrid/learning-resources**.

Students with a documented disability who wish to request academic accommodations **must** contact Disability Services to discuss accommodation requests and eligibility requirements. Once successfully registered, the student also **must** notify the course instructor that they wish to access accommodations in the course. Please contact Disability Services at disabilityservices-madrid@slu.edu or +915 54 58 58, ext. 230 for an appointment. Confidentiality will be observed in all inquiries. Once approved, information about the student's eligibility for academic accommodations will be shared with course instructors via email from Disability Services. For more information about academic accommodations, see "Student Resources" on the SLU-Madrid webpage.
Note: Students who do not have a documented disability but who think they may have one are encouraged to contact to Disability Services.

3. Information regarding the collection of student work for assessment.

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to accreditation requirements, SLU-Madrid regularly assesses its teaching, services and programs for evidence of student learning. For this purpose, SLU-Madrid keeps representative examples of student work from all courses and programs on file, including assignments, papers, exams, portfolios and results from student surveys, focus groups and reflective exercises. Copies of your work for this course may be kept on file for institutional research, assessment and accreditation purposes. If you prefer SLU-Madrid not to retain your work for this purpose, you must communicate this decision in writing to your professor.