



Course Outline

University Studies

ENCMP 100A
Computer Programming for Engineers
Winter, 2013

3 CREDITS
3+1.5 HOURS PER WEEK
3.8 Engineering Units (for U. Alberta)

INSTRUCTOR: Jean-Pierre De Villiers

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OFFICE NUMBER: S211B

OFFICE HOURS:

Monday	11:00-11:50
Tuesday	12:00-12:50
Wednesday	13:00-13:50
Thursday	11:00-11:50
Friday	11:00-11:50

HOURS OF INSTRUCTION:

Monday	09:00 – 10:50	Room 239 (Lab)
Tuesday	11:00 – 11:50	Room 239
Wednesday	15:00 – 15:30	Room 239
Friday	10:00 – 10:50	Room 239

PRE-REQUISITE(S)/CO-REQUISITE(S):

COURSE DESCRIPTION:

This course is an introduction to MATLAB with applications to engineering problems. Topics to be covered include an introduction to algorithmic problem solving, design methodologies, MATLAB language structure and syntax. Weekly laboratories offer students the opportunity to translate concepts presented in lectures into interesting application programs.

COURSE OBJECTIVES:

1. Develop a working understanding of MATLAB as a tool to solve engineering problems.
2. Develop modular MATLAB programs using user-defined functions.
3. Explore visualization topics using MATLAB plotting capabilities.

REQUIRED RESOURCES:

- **MATLAB: A Practical Introduction to Programming and Problem Solving**, Stormy Attaway; Butterworth-Heinemann, 2012, 2nd edition.
- Lecture/lab notebook
- USB storage device

TOPICS TO BE COVERED:

This course is very much a hands-on introduction to MATLAB. Students should be prepared for lectures and labs that mix formal instruction with practical exercises to be carried out individually (the labs) and collaboratively (in class exercises). Advanced preparation (e.g. reading the relevant chapters ahead of lectures) is strongly recommended.

Please Note:

This plan may be modified to facilitate unforeseen time constraints. Date and time allotted to each topic is subject to change. Not all sections in a chapter will necessarily be covered.

Wk	Ch	Lectures	Lab
1	1	Intro to Computing, MATLAB environment; MATLAB basics: program structure, variables, data types	Lab 1 - Intro to MATLAB
2	2	MATLAB basics: scripts, I/O	Lab 2 - Scripts I - basic
3	3	Selection Statements	Lab 3 - Scripts II - conditionals
4	4	Repetition Statements	Lab 4 - Loops
5	5	Vectorization	Lab 5 - Vector operations
6	6	MATLAB programs	Lab 6 - Programming
7		Family Day; Midterm Review; Midterm	
8	7	String Manipulation	Lab 7 - Strings
9	8	Cell Arrays and Data Structures	Lab 8 - Structures
10	9	Advanced Input/Output	Lab 9 - File I/O
11	10 11	Advanced Functions and Plotting	Lab 10 - Plotting: space curves, parametric functions
12	12	Applications: Linear Algebra	Lab 11 - Linear Algebra: Linear systems
13	15	Applications: Calculus	Lab 12 - Calculus: Differential Equations
14		MATLAB Programming - Course Synthesis	Lab 13 - Structured Programming and Recursion

iLearn

Go to <http://ilearn.keyano.ca>

This course is supported through iLearn. Readings and handouts will be posted on iLearn. Login information will be provided by your instructor. For further instructions please see the iLearn handout.

EVALUATION:

Component	Percentage	Due Date
Quizzes	7.5%	Four quizzes through the term
Assignments	2.5%	Weekly, posted on iLearn
Labs	20%	Weekly, posted on iLearn (also, see below)
Midterm	25%	February 19, 2013
Final Examination	45%	Date TBA, in April

GRADING SYSTEM:

Letter Grade	Description	Grade Points
A+		4
A	Excellent	4
A-		3.7
B+		3.3
B	Good	3
B-		2.7
C+		2.3
C	Satisfactory	2
C-		1.7
D+		1.3
D	Minimal Pass	1
F	Failure	0

Students intending to transfer to other institutions require a 'C-' as a minimum grade. Transfer information on each course is available at the [Alberta Council on Admission and Transfers](#).

Students who do not complete all the required work should not expect to pass the course.

Students should consult:

http://www.keyano.ca/current_students/examinations/index.htm

IMPORTANT DATES:

January 18, 2013	Courses dropped after this date will be designated “W”. (A withdrawal (W) is not reflected in your GPA)
February 19, 2013	Mid-term examination
March 8, 2013	Courses dropped after this date will be designated “WF”. (A withdrawal failure (WF) counts as a 0 in your GPA)
April 19, 2013	Last day of classes
April 22-30, 2013	Final Exams

COLLEGE POLICIES**Equality, Equity and Respect**

The Keyano College is committed to providing an environment of equality, equity and respect for all people within the College community. All members of this community are considered partners in developing teaching and learning contexts that are welcoming to all. Faculty, staff, and students are encouraged to use inclusive language to create a classroom atmosphere in which students' experiences and views are treated with equal respect and valued in relation to their gender, ethnic and cultural background, and sexual orientation.

Students should consult:

http://www.keyano.ca/Committees/IRA/Individual_Rights_Policy.asp

Plagiarism and Cheating

Every student expects to be treated and evaluated fairly in a course. Plagiarism and cheating robs everyone of this right.

No student may submit words, ideas or data of another student or person as his or her own in any writing, project, assignment, quiz, electronic presentation, exam etc. Any work used that is not the student's own must be clearly cited as belonging to someone else. There are penalties for using other's work and not citing it. The Student's Rights & Responsibilities document clearly outlines these penalties and the appeal process.

- No learner can obtain information from another student during an exam.
- No learner can bring unauthorized information (paper or electronic) into an exam or quiz.
- No student can submit work done in another course for grading in this course without the written prior approval of the course instructor.
- No student can submit copyright protected or commercially produced materials as part or all of an assignment without proper citation & permission.

Student Rights & Responsibilities

Students should consult the Keyano College Credit Calendar or online at:

<http://www.keyano.ca/Media/Collections/Calendars/Keyano.Calendar1112-10-full.pdf>

Specialized Supports and Duty to Accommodate

Disability Support Services: Learner Assistance Program

If you have a documented disability or you think that you would benefit from some assistance from a Disabilities Counsellor, please call or visit the Disability Supports Office 780-792-5608 to book an appointment (across from the library). Services and accommodations are intended to assist you in your program of study, while maintaining the academic standards of Keyano College. We can be of assistance to you in disclosing your disability to your instructor, providing accommodations, and supporting your overall success at Keyano College.

Specialized Supports and Duty to Accommodate

Specialized Support and Duty to Accommodate are aligned with the office of Disability Support Services: Learner Assistance Program (LAP) guided by federal and provincial human rights legislation, and defined by a number of Keyano College policies. Keyano College is obligated by legislation to provide disability-related accommodations to students with identified disabilities to the point of undue hardship.

COURSE-SPECIFIC POLICIES

iLearn and Lecture Notes

You are responsible for keeping a complete record of classroom work (lecture notes, interactive problems, classroom exercises) in a proper notebook. **Lecture overheads, when used, are posted to iLearn at the end of each week and do not constitute a complete record of lecture materials.**

Attendance Policy

You are expected to attend all lectures, tutorials, and laboratories without exception. Failure to do so may jeopardize your standing in the course; please consult the Keyano College Calendar, also available on-line at <http://www.keyano.ca/calendar/>.

- Valid reasons for absences include illness, medical appointments, and family emergencies.
- You are expected to **notify your instructor** of your absence by **email** (preferred) or by **telephone** on or before the date of the absence; failure to do so will result in your absence being recorded as unexcused.
- You may be required to provide **written proof** justifying your absence at the instructor's discretion. Such proof will be required to obtain an excused absence from a quiz, tutorial, lab or exam.

Assignments and Laboratory Work

Assignments are programming tasks related to current lecture materials; assignments are typically due one week after being assigned.

Labs are formal exercises begun in the weekly lab period. Lab reports are due at the end of the lab period unless otherwise stated.

Attendance to all labs is mandatory; **unexcused absences or incomplete lab exercises may result in a failing grade for the course.**

All lab work **must be your own work; no collaborative work is permitted.** Any attempt to

present another student's work as your own, or to present material obtained from Internet resources will result in an **automatic failing grade for the course**.

Submissions of assignments and lab exercises are to be done electronically, via iLearn.

Quizzes

Quizzes will be given more or less every three weeks. Each quiz will last about 15 to 25 minutes. If a quiz is missed without a valid reason, a grade 0 will be assigned, and **may contribute to a failing grade in the course**.

Plagiarism and Cheating

There is a zero tolerance policy for all forms of academic dishonesty. Plagiarism of any kind, the use of illegal study aids, or the fabrication of experimental results will be dealt with according to Keyano College policy. Specifically for this course:

- **Cheating on assignments:** if you are suspected of having obtained assignment solutions through dishonest means, you will be required to convince your instructor that you are able to reproduce any solution on the given assignment; failure to do so will result, at minimum, in a grade of zero for the assignment.
- **Plagiarizing components of a lab assignment:** submitting plagiarized material for any portion of a lab assignment will result, at minimum, with a grade of zero for the lab report in question.
- **Cheating during an examination (including quizzes)** will result, at minimum, with a failing grade in the course

Repeat offenses will be penalized with, at minimum, a failing grade in the course.



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Date

Reviewed and approved by:

Louis Dingley, Chairperson

Date

Guy Harmer, Dean

Date