Syllabus: Intro to MatLab Programming

SOIL 5110-363 (1 credit)

Summer 2013 – July 15th to 26th

1. Lecture: MTWRF 08:00 – 9:30 a.m. AGH 374

2. Instructor: Andres Patrignani and Tyson Ochsner

Office: 402 Ag Hall

Phone: 405-385-2254

e-mail: andres.patrignani@okstate.edu

Consultation hours: anytime you want to stop by. If you prefer an appointment, please send me an email.

3. Resource Materials:

1) Text books (optional): MATLAB: A Practical Introduction to Programming and Problem Solving. Attaway, Stormy. 2012. Full text online using OSU online library.
2) Notes and supplementary lecture slides.
3) Matlab code will also be posted in the soil physics web page www.soilphysics.okstate.edu
4) Matlab online glossary: http://people.sc.fsu.edu/~jburkardt/html/matlab_glossary.html
5) Matlab Central: http://www.mathworks.com/matlabcentral/

4. Goals for the Course:

Students who successfully complete this course should be able to:

a) construct effective, well documented, and error free scripts and functions in Matlab.
b) apply Matlab programming to their graduate thesis project.
c) find information independently for self-teaching and problem solving.

5. Your Responsibilities:

5.1 Preparation: Read class notes and handouts prior the class. This will help you identify the concepts you are familiar with and generate questions.

5.2 Classroom: I expect you to be punctual and to avoid the use of materials that are not related to the course (i.e. phones, newspaper).

5.3 Lecture attendance: Attendance is not mandatory. Since this course will be during the summer, I understand that there might be a need to miss class. However, I expect you to be responsible and to attend 90% of the classes. Missing two or more classes will likely lead to poor performance in the course since all classes are linked to each other.

6. Teaching methods:

I will include short lectures, live demonstrations at the Matlab prompt, hands-on training (bringing your own laptop to the class), homework, quizzes, class project, and a final exam. My objective is to present programming in a friendly way using a variety of methods so you can understand the logic to develop your own codes and functions.

7. Grades and Policies

7.1 Source of grades

7.1.1 Quizzes: a total of 9 quizzes will be given during the course. Each Quiz will have questions about the most important issues discussed in the previous class. Quizzes will include fill-in-

the-blank questions and finding mistakes in functions and scripts. The quiz with the lowest score will be dropped. There will be no make-up quizzes.

7.1.2 Homework: Every student will need to complete each assignment and typically send it in **".m" format** to me before the next class.

7.1.3 Final exam: The final exam will be a take home exam. The final exam will consist in building a Matlab function related to a specific topic set by the instructor. Final exam will be given on Friday, July 26th.

Source of Grade	Quantity	Points of each	Total
Homework	4	20	80
Quizzes†	9	10	80
Project	1	100	100
Final Exam	1	100	100
		Total=	360

† Quiz with lowest score will not be considered.

Grades will be:

Grading Scale	
A	90-100%
B	80-89.9%
C	70-79.9%
D	60-69.9%
F	<59.9%

7.2 Tardy work:

Assignments turned in after the class has started will have an immediate discount of 5 points for each homework assignment.

7.3 Academic Integrity

The instructor recognizes the fact that you have learned the benefits and rewards of independent work, especially during examinations. In the unfortunate circumstances that the academic honesty policies of Oklahoma State University are broken and appropriate action is needed, it will be handled by stated procedures of the university without delay. Academic dishonesty will not be tolerated.

8. Special Accommodations for Students

If any member of this class feels that he/she has a disability and needs special accommodations of any nature, the instructor will work with you and the Office of Disabled Student Services, 315, Student Union, to provide reasonable accommodation to ensure that you have fair opportunity to perform and complete this class. The phone number is 405-744-7116. Please advise the instructor of such a disability and the desired accommodation ahead of time when possible.

9. Target Schedule

Date		Lecture topics	Quizzes	Homework
7/15/2013	M	Introduction to programming Coding framework Use of Matlab help		
7/16/2013	T	Scripts and functions Adopting good programming habits.	Quiz 1	Hw 1 CF† Step 1
7/17/2013	W	Absolute and logical indexing Element-wise operations Control flow and loops	Quiz 2	Hw 2 CF Step 2 and 3
7/18/2013	R	Import data Export data	Quiz 3	
7/19/2013	F	Plots Line, scatter, surface plots. Subplots. Publication quality graphs. Axes properties.	Quiz 4	Hw 3 CF Step 5
7/22/2013	M	Debugging errors Common mistakes Matlab debugger	Quiz 5	
7/23/2013	T	Statistics Descriptive stats Histograms ANOVA	Quiz 6	
7/24/2013	W	Curve fitting Linear models Multiple regression.	Quiz 7	Hw 4 CF Step 6 and 7
7/25/2013	R	Case study 1	Quiz 8	
7/26/2013	F	Case Study 2 Provide take-Home Final Exam	Quiz 9	Due Date Project. Coding Framework from step 1 to 8 (at 11:59 AM CDT)
7/29/2013	**M**	**Final**	**Due date for the final exam (at 8:00 AM CDT)**	

† CF is the abbreviation of coding framework.