ME 581 Numerical Methods in Engineering
Fall 2015 – Wang2599 – Tuesday/Thursday 9:00 to 10:15 AM
Course webpage in Blackboard

Prof. Marisol Koslowski Office hours: Thursday 10:30AM-noon(EST) in ME 2196. I will be available in mixable or by email marisol@purdue.edu

TAs

Lei Cao cao42@purdue.edu (contact for nanohub.org and mixable)
Yijun Ge ge24@purdue.edu
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Bogdan Tanasoiu btanasoi@purdue.edu

Office hours (TAs are available in ME 2134 and Mixable during their office hours)

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00AM-11:00AM	Palsdottir		Ge		
11:00AM-12:00PM				Koslowski	
2:30PM-4:30PM		Tanasoiu			
3:00PM-5:00PM	Palsdottir		Ge		

Course topics:

- Tutorial on C and fortran (1/2 week)
- Introduction to scientific computing (1/2 week-Chapter 1).
- Rootfinding (1 week-Chapter 2)
- Systems of linear equations (3 weeks-Chapter 3).
- Solution to non-linear equations (1 week-Chapter 3).
- Eigenvalues and Eigenvectors (1week-Chapter 4)
- Interpolation and polynomial approximation (1 week-Chapter 5).
- Numerical differentiation (2 weeks-Chapter 6).
- Numerical integration (2 weeks-Chapter 6).
- Ordinary differential equations (2 weeks-Chapter 7).
- Partial differential equations (2 weeks-Chapters 8,9,10,11).

Textbook

"A Friendly Introduction to Numerical Analysis" by Brian Bradie, Prentice-Hall, 2006.

Homework, Exams

- Homework will be assigned every other week in Blackboard.
- Homework will involve, handwritten analysis and calculation and programming.
    - If you are a ProEd student (ME581-EPE) you should submit your homework in pdf format using SVN.
    - If you are on campus (ME581-001) student you should submit paper copies of your homework in class.
- All programs must be written by you. Your code will be submitted using SVN in nanohub.org
- Some computer programs will also involve writing a short technical report describing the problem being solved, the numerical method being used, your code, and a presentation and discussion of your results.
- One mid-term examination will be on Thursday October 8.
- Final exam TBD.

Grading

- Homework 50%
- Midterm 20%
- Final 30%

Computing Environment

It is highly recommended that you develop, and run all your codes using the Unix or Linux environment. This will be available when you create an account and we give you access to workspace in nanohub.org.

Tutorial on Unix/Linux:

http://www.ee.surrey.ac.uk/Teaching/Unix/

Pick an editor:

vi
emacs

Important Resources:

Numerical Recipes in Fortran, Numerical Recipes in C

http://nanohub.org

SVN

http://nanohub.org/resources/3061

Mixable

http://www.itap.purdue.edu/studio/mixable/

http://www.purdue.edu/mixable/SSO/Login

For ProEd students:

- The URL/location of the course (streaming video log in: https://engineering.purdue.edu/ProEd/current_student)
- How to login (typically using their Purdue Career Account username and password)
- students should contact the ITaP Help Desk (http://www.itap.purdue.edu/help/) for Blackboard questions and Engineering Professional Education (proed@purdue.edu) with streaming video lecture questions.

For on campus students:

students should contact the ITaP Help Desk (http://www.itap.purdue.edu/help/) for Blackboard questions

For on-campus students we have created a special user account that provide access to only the MPEG-4 files of the lectures. The ID number this generic account is: **9999926975** and the course name is: **me581**

  To access the sessions, log in at: https://engineering.purdue.edu/ProEd/OnCampus

Access to these lectures is only available from an IP address on campus so anyone logging on will have to be on campus for it to work. Our login process checks for a Purdue IP address before granting access. Once they log in and download a session to their device, they can view it anywhere.