Syllabus: **EGN 5423 or EEL 6935 MATHEMATICS FOR COMMUNICATIONS ENGINEERING**

The 5000- and 6000-level sections are identical in content, but the 6000-level section is graded at a higher standard. Contact the Electrical Engineering Department if you wish to enroll in a 6000-level section.

Instructor: Prof. A. D. (<u>Dave</u>) Snider, ENB 246A, 813-974-4785, FAX: 813/974-5250 snider@usf.edu
Office hours (see Black board).

Text The following texts are recommended, not required. My impression is that the text by Olver/Shakiban is most suitable for engineers, but probably any text on matrices will have advanced chapters covering the material equally well. At any rate, try using your old textbook and the class lectures/notes before you buy a new book. A few chapters from my book on Differential Equations and Linear Algebra are available in Blackboard's "Course Documents;" they are very low-level.

- `Applied Linear Algebra, P.J.Olver, C. Shakiban, Prentice-Hall Inc., 2006 (?). ISBN # 0-13-147382-4.`
- `Introduction to Numerical Linear Algebra and Optimisation, P. G. Ciarlet, Cambridge University Press, 1989. ISBN # 0 521 32788 1.`
- `Fundamentals of Matrix Computations, 2nd edition. Watkins, D. S. Wiley-Interscience, 2002. ISBN#:0-471-21394-2.`

Access to MATLAB software is required. It exists on the USF engineering computing network. Tutorials are available on the internet at many sites.

Catalog Description: Advanced matrix algorithms: LU and QR factorizations, least-squares, pseudoinverses. Optimization methods.

Course Prerequisites: MAP 2302 Differential Equations (solution methods for first order nonlinear and higher order linear equations), basic matrix algebra.

The **lectures** can be viewed (by anyone at any time) at
http://netcast.usf.edu/browse.php?page=Classes/engineering/snider/MatrixComputations .

Welcome to my classes, USF students!
You're taking a "web-only" class from me. That means you won't see me live; you'll watch lectures I taped in the past, on the course materials. I will be available in my office for consultation a few hours per week, and we can Skype. I'll answer your emails promptly, unless they are addressed in the syllabus or at the course web site in Blackboard, https://my.usf.edu. This site contains class announcements, documents, old and current exams, assignments, etc.

Think about this: you're taking a course from a professor whom you'll hardly ever see. So you don't have much chance for an "A" unless you follow the web procedures precisely.

Be sure to read this long-winded syllabus entirely. Then print it out and stick it in the back of your textbook for future reference.

You may have misgivings about non-live lectures. Let me relate a few observations that I have made over the past years with this process.
First of all, this procedure has proved quite successful - to my surprise. I was leery about it at first, but I soon found out that the average student performance on tests was slightly better than it had been before, when I was lecturing live. I think the reasons for this are as follows:
1. You will never need to miss a lecture due to illness, conflicting appointments, being out of town, or simply being tired. The lectures are at the web site all semester long, 24/7.
2. You can re-watch any lecture, or part of a lecture, as many times as you need.
3. If you need to take a break (no student has ever fallen asleep during my lectures, of course!!!), you can stop the playback and resume when you return.

The lectures are numbered in order (although the web listings may get shaken up a little from semester to semester).

They were taped during different semesters, so you will have to figure out the right pace to get you through them during the time allotted in your current semester. If you can't do this, please drop my class and re-take MTH 101, paying particular attention to the lessons on ratio and proportion.

Any administrative instructions that I give in the lectures are probably out of date. Consult your email and Blackboard weekly for updates from me on assignments, test dates, and procedures in general.

Be sure to read the document on accurate calculations. Remember these tips in all your classes.

Lecture notes replicating everything that appears on the blackboard during the lectures can be downloaded from Blackboard. (Ignore notes in the .xbk format.) Print out the lecture notes before you watch the lecture and have them in front of you.

Requirements and Assessment:
1. Each student must email Prof. Snider with the following data: Last name: _____ First name: _____ Class: EGN 5423, by (see Blackboard). **I will not acknowledge these emails individually**. On (see Blackboard) you will receive an acknowledgement, by email, from Dr. Snider that you are in his class email address list; if you do not receive this acknowledgement, email me again – until I acknowledge receipt. Thereafter each student is liable for all email notices concerning the class from Prof. Snider. Students who wish to use different email boxes should email this data from each box. Do not use one email box to request mail to a different box.

2. Each student must sign a copy of the final page of this syllabus as indicated below and submit it to Dr. Snider by (see Blackboard). You are not officially enrolled in the class until you have turned in a signed syllabus. Postal-mail a hard copy to Dr. A D Snider, Dept. of Electrical Engineering, University of South Florida, 4202 East Fowler Avenue ENB 118, Tampa FL 33620; or put a copy in my EE Department mailbox. *Email is not acceptable*. **I will not acknowledge receipt of these syllabi individually**, but they can be regenerated later in the semester if a problem arises.

3. Certain homework problems will be recommended to the students, but not graded. You should regard the old tests as a prime source of homework problems; work them during the semester as the particular topic is covered in the lectures. Additionally 12 computational takehome tasks will be required. The takehomes are computer graded with no partial credit; you will have 3 chances to submit your solutions, if you send them in soon enough for my grader to respond with your scores.
Takehome due dates: (see Blackboard)

4. An in-class midterm examination, covering the first 6 MATLAB assignments, and a final will be given. If the time and/or place is inconvenient, they can be taken at remote sites and more convenient times if a proctor agreement is worked out; I will provide details later. Time permitting, you will be asked to present an oral defense of your takehome and exam solutions. Your final grade will be a weighted average of the midterm, the takehomes, and the final. I recommend that you take a timed midterm and a timed final from Blackboard for practice. These tests are open-book, open-notes except that you are not permitted to bring old tests to the exams.

5. An "incomplete" grade will be awarded if either the email, syllabus signoff, midterm, takehomes, or final are not submitted. Incompletes can be made up following USF policies; you are on your own to figure out these policies. However you need to know that I am retired, and only work as an adjunct faculty, so I cannot guarantee my availability after the semester is over. If you need a flexible, cooperative professor instead of a cranky old curmudgeon, please take another class.

6. The email, syllabus signoff, midterm, takehome assignments, and final are required for the student to get a grade. The tests are weighted 40% and 60% respectively.

Please send a hard copy of this page to Dr. Snider.

Academic Dishonesty - It is not acceptable to copy, plagiarize or otherwise make use of the work of others in completing homework, project, exam or other course assignments. The minimum penalty for doing so is an automatic zero on the assignment and an "F" in the course. If there are any questions regarding this policy they should be directed to the EE graduate program coordinator.

 I have read the syllabus for EGN 5423, and agree to abide by its schedule and terms.

(Print name) _____(signed) _____