Linear Algebra
MATH 2660

Instructor: Dr. Michel Smith
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Class Web Site: http://www.auburn.edu/~smith01/math2660Su23/

Office Hours: tentatively immediately after class and by appointment.

Text: *Elementary Linear Algebra*, 8th edition, Ron Larson

Textbook sections:

Chapter 1: Systems of linear equations
Chapter 2: Matrices
Chapter 3: Determinants
Chapter 4: Vector spaces
Chapter 5: Inner product spaces
Chapter 6: Linear transformations
Chapter 7: Eigenvalues and eigenvectors

Class Participation and Working in Groups:
Students will be expected to present solutions to problems and homework exercises on the blackboard. An integral part of the learning process for any mathematics course is solving mathematics problems. You will be challenged to solve problems and do exercises that you have not seen; my purpose is to develop analytical problem-solving techniques that can be applied to a broad range of real-world problems. Though idealized, the problems assigned for the course mirror problems encountered in science and engineering disciplines. The techniques of mathematics are retained much more firmly if students can discover their own solutions to problems. Students will be expected to critique other student presentations for understanding and correctness; this is to be done respectfully. Alternate methods of solving problems also add to one's repertoire of problem-solving techniques; I encourage students to offer presentations of different techniques for problem-solving. Working in groups is not discouraged (and in fact is often encouraged); students are expected to present their own work on the blackboard and to give credit to other students (or any other outside resource) who (that) have contributed to the solution of the problem they are presenting.

Parameters for Working in Groups:
It is unethical to use someone else's work as your own. In working together, each person should start working on a problem or exercise by themselves; if they get stuck at some point they might ask "did anyone figure this out?" and accept someone's help (and not a completed solution) in getting over a difficulty. Typically, a new type of problem

often needs a “trick” (or more correctly, a new technique) for solution and not everyone will figure out what’s needed at the same time. To those who figure out the “trick” - I encourage them to offer hints (this is my own method of helping students) at first rather than offer a complete solution. If one has figured out most of the underlying work, then the new technique - whatever gets us over the hurdle - is more firmly remembered. Finally, as mathematicians do, one should properly give credit to one’s collaborators for their contributions. When presenting a collaborative solution, credit for the discovery of a new technique should be given to the individual who figured it out. When projects are handed in, include the names of members of the study group and, where possible, give credit to those who figured out critical techniques and steps.

See also my essay on the Modified Socratic Method:
http://webhome.auburn.edu/~smith01/math2660Su23/MyModifiedSocraticMethod.pdf

Grade Calculation

Item	
Participation: attendance, blackboard presentations, class discussions	10%
Participation: homework	15%
Tests	35%
Final Exam	40%

The standard 10 percentage point scale will be used: 90 to 100 =A; 80 to <90 = B; 70 to < 80 =C; 60 to <70 = D; <60=F.

Tentative Test schedule: July 7, 14 & 21.

ACCADEMIC HONESTY: Plagiarism (work presented as your own that is not your own) and giving or receiving aid on exams in whatever form will result in action by the University Honesty Committee. Refer to the Tiger Cub for more specific details.

ABSENCE FROM EXAMS: Refer to the Tiger Cub for a list of acceptable reasons for being absent from an exam, quiz or class. Any absence from the final exam must be cleared with your Dean's office.

Accommodations for Disabilities: Students who require such considerations should make an appointment with me during the first week of classes. Please bring your memo from the Office of Accessibility. If you do not have a memo, it is recommended that you make an appointment with a member of the professional staff in the Office of Accessibility, 1244 Haley Center (844-2096).

Attendance Requirement. Attendance and class participation are a critical part of this course. Students are permitted one unexcused absence. More than one unexcused

absence (an excused absence is any University excused absence) will result in percentage points taken off the final grade as follows:

1 missed class results in a total of zero points subtracted,
2 missed classes results in a total of 2 point subtracted,
3 missed classes results in a total of 5 points subtracted,
4 missed classes results in a total of 10 points subtracted,
More than 4 missed classes will result in a grade of "F" assigned for the class.

How to study for this class.

(1) The canonical calculation for undergraduate courses is 2 to 3 hours spent outside of class for each 50 minute lecture period. For a summer course that meets 90 min/day this translates to **3.6-5.4 hours per day or 19-27 hours per week working on homework or studying.** There's a correlation between the hours spent per week on a course and the grade. To earn a B or an A, a student may need to spend even more time. Some days you may spend less than 3.6 hours and some days more than 5.4 hours to study the material or complete homework assignments.

(2) During the class meeting time, students will be asked to present their solutions to exercises generally followed by my comments and possible corrections. You should listen and take notes - **ask questions if you do not understand the proof or solution!** Then you should go home and try to reproduce the solution without looking at your notes. Use your notes as hints. If you still cannot figure out the solution/proof ask someone in your study group for help.

(3) Set up and use study groups. I discovered that successful students often set up study groups with friends from the class and use those groups to work through problems. I suggest that a student first works on a problem for a good while before asking for help. This allows the problem to be firmly set in a student's mind - so that just a "nudge" in the direction of a solution is all that is needed.

(4) Finally, ask me questions. My teaching method is based on the Socratic question and answer process - and the questioning process goes both ways.