

MATH 141 Section S13N01

Matrix Algebra for Engineers

Jan - Apr 2013



VANCOUVER ISLAND
UNIVERSITY

Time & Location: Mon & Thu 2:30-4:00, Fri 12:30-1:30, all in Bldg 360 Rm 323

Instructor: Glen Pugh
glen.pugh@viu.ca (This is by far the best way to reach me!)
Bldg 359 Rm 201
(250)753-3245 ext. 2752

Office Hours: Mon 12:30-2:00, Wed 2:30-4:00, Thu 11:30-1:00, or by appointment.

I am available at office hours to answer questions and help with homework. Come prepared to show me your attempted homework, and have your class notes organized.

webpage: <http://web.viu.ca/pughg/Spring2013/math141S13N01>

This page will be updated weekly with announcements, handouts, homework assignments and test solutions.

Prerequisite: Min. "C" in either MATH 100 or MATH 121. May not be taken for credit by students who have received credit for MATH 241 or equivalent.

Text: *Elementary Linear Algebra 10th Edition (Abridged)* by Howard Anton and Chris Rorres, available at the Bookstore.

Course Outline: Matrix (and linear) algebra is an extension of familiar real number algebra to two or more dimensions. It allows for the framing and efficient solution of complex and seemingly intractable problems. For example, Google's page ranking algorithm (on which its successful search engine is based) makes extensive use of matrix theory. Another application is the rendering and manipulation of computer graphics on a video display. Course topics and the corresponding sections from the text are

- ◆ Systems of Linear Equations and Matrices: 1.1-1.8
- ◆ Determinants: 2.1-2.3
- ◆ Euclidean Vector Spaces: 3.1-3.5
- ◆ General Vector Spaces: 4.1-4.11
- ◆ Applications of Linear Algebra: 5.1, 5.7, 5.8

Homework: Weekly homework assignments from the textbook will be posted on the course website.

Doing practice problems is essential for learning mathematics and it is crucial that you complete and understand all assigned homework. In addition to the assigned problems, you should also attempt additional problems from the text to reinforce your understanding.

It is important that you are able to solve problems on your own; however, you are also encouraged to work together on the problem sets. Explaining your solutions to others and discussing problem solving strategies contributes enormously to your understanding. You may of course also see me for help with homework problems.

Homework will not be collected for grading, though you will be tested on the homework material. Answers to odd-numbered problems are in the back of the text.

Quizzes: Short in-class quizzes will be given the following **Thursdays: Jan 17 & 24; Feb 14 & 21; Mar 21 & 28**. Each quiz will have two to four questions and should take about 15 minutes. The purpose of the quizzes is to encourage you to keep up on your homework, and the questions will be very similar to assigned homework questions. Quizzes are worth 15% of your final grade. Your lowest quiz score will be dropped in the calculation of your average, so you may miss one quiz without penalty. No make-up quizzes will be given.

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- Tests:** There will be three 75 minute class tests given on the following **Thursdays: Jan 31, Mar 7 and Apr 4**. Class tests are comprehensive, covering all material since the beginning of the course. Each test is worth 15% of your final grade.
- No make-up tests will be given, but if you miss a class test for a good reason allowances may be made. Documentation must be provided to explain your absence: doctor's note in the case of illness, death certificate in the case of death in the family, police report in the case of car accident, etc. No exceptions.
- If you are ill on test day and you elect to write the test anyway, your grade will stand.
- Final Exam:** There will be a comprehensive final exam in April worth 40% of your grade. The exam period is Apr 17-26 2013. Travel plans should not be made until the final exam schedule is released, which is at least one month before exams begin. **In no event will the final exam be rescheduled to accommodate travel plans.**
- Grading Summary:**
- | | |
|------------------------|-----|
| Quizzes (best 5 of 6): | 15% |
| Class Tests (3): | 45% |
| Final Exam: | 40% |
- Grade Review:** If you do not agree with the grade received on a test, you may submit your paper for regrading within three days of the date it was returned to you. In such cases, the entire paper will be regraded.
- There is no possibility of end-of-term extra credit assignments or supplemental exams to improve final grades.
- Grading Scale:**
- | | | | |
|--------------|-------------|-------------|------------|
| A+ : 90-100% | B+ : 76-79% | C+ : 64-67% | D : 50-54% |
| A : 85-89% | B : 72-75% | C : 60-63% | F : 0-49% |
| A- : 80-84% | B- : 68-71% | C- : 55-59% | |
- Extra Help:** In addition to help during office hours, you can get extra help from the tutors in the Math Learning Centre located in Bldg 360 Rm 303. A schedule is posted on the door of this room.
- Attendance:** Attendance will not be taken, however you are encouraged to attend all lectures. If you miss class, read the textbook sections covered and borrow notes from a classmate. I do not lend my class notes nor will I reteach material during office hours.
- Student email:** Ensure that you have an active email address listed in your student record and that you check it regularly. I occasionally email the class with reminders or notices.
- Classroom Environment:** I like the classroom environment to be relaxed yet respectful. I encourage you to ask questions, discuss the topics at hand, and quietly listen while your colleagues ask questions or offer comments. Please don't sit and chat if you don't feel like being in class on a particular day. Arrive on time, and if you must leave class early for an appointment, please advise me ahead of time so that disruption is minimized. During class, texting, listening to music, surfing the web, etc is rude: please don't do it.
- Academic Misconduct:** Incidents of cheating or other academic misconduct carry severe consequences and will be dealt with seriously. Refer to VIU Policy 99.01 and Procedure 99.01.001.
- Calculators & Translators:** A basic scientific non-programmable, non-graphing calculator may be used for class tests and the final exam. (The Canon F502G, available at Staples for about \$10, is plenty). Sharing calculators during quizzes and tests is not permitted.
- Electronic translators may NOT be used for quizzes, tests or the final exam.
- Cell Phones & iPods:** Turn off and put away before class. Cell phones may NOT be used as clocks or calculators during tests.
- Formula Sheets:** Formula sheets may NOT be used for quizzes, tests or the final exam. You will be required to know some formulas, while other more difficult to remember formulas will be supplied.