

Math 121, Fall 2015

Dr. Sarah Raynor

Textbook: We will not be using a text for this course. Notes will be provided as the semester progresses, and the class will also blog the results we discover as we work.

Office: Manchester 343

Office Phone Extension: 4466

Office Hours: Office hours will be Mondays from 2-3:30pm, Tuesdays from 1-2pm, Thursdays from 4-5pm, and Fridays from 1-2pm. Also, please feel free to drop by my office at any time, but I recommend that you email first to make sure that I am available.

Math Center: The Math Center is available for additional assistance with this course. You may get one-on-one appointments there and it is open from 12-5 and 6-9 Monday-Thursday and 5-9 on Sundays. They will also host drop-in help sessions for this class on Tuesdays and Thursdays from 7-9pm in a room TBA.

Email: raynorsg@wfu.edu

Course Website: <http://www.wfu.edu/~raynorsg/math121.html>. Also see Sakai: <http://sakai.wfu.edu>.

Course Blog: Each student will be maintaining a blog of the course. These blogs will be housed on the class Sakai site, in which you will be automatically enrolled. You are expected to make a blog entry at least once a week, and blog entries should be designed to help your fellow students follow and catch up with material. There will also be a wiki available on Sakai and students are encouraged to keep the wiki up-to-date with course concepts, theorems, and examples.

Course: This semester, we will be exploring the subject of linear algebra. Linear algebra is the study of systems of linear equations, matrices, and linear transformations. It has many applications to computing, economics, business, science, and other areas of math. We will begin by reviewing functions in one dimension, and then move on to studying linear transformations in two dimensions and then three dimensions. Finally, we will discuss the abstract subject of vector spaces.

This course will also include an introduction to mathematical proof. You will learn how to write correct proofs of the results we study, which will be an excellent introduction to upper level mathematics.

Each day in class, we will begin with student presentations of an assignment from the day before. We will then discuss some examples and new ideas, and students will write up their solutions before the next class period.

Assignments: Several different types of assignments will be assigned each day:

- **Presentation Problems:** Students should prepare homework designated as presentation problems for the next class day. At the beginning of class, you will "check in" to indicate whether you are ready to present the problem or not. I will select one person to present the problem on the board.
- **Practice Problems:** Practice problems are additional examples for you to work at home to help you understand the concepts. They do not need to be turned in.
- **Calculation Problems:** Calculation problems are to be completed and turned in. They are due one week from the class day in which they are assigned. Late problems will not be accepted.
- **Proof Problems:** Proof problems are to be completed and turned in. They are due one week from the class day in which they are assigned. Late problems will not be accepted. If you do not get credit for a proof problem, you may correct it and turn it back in as many times as you like to get credit, but the total credit available will decline depending on how many submissions you make. You must submit each problem at most one week after it is returned to you to continue being considered for credit.
- **Projects:** Open-ended projects will be assigned every few weeks to explore applications of linear algebra.

Tests: The course will have two midterm exams. The tentative dates of the exams are Wednesday, September 23, and Thursday, October 29. You must contact me by September 1 if you will have any conflicts with these dates. Otherwise, you may miss the exam only in the case of serious illness or emergency. The course will have a final exam at 2:00pm on Friday, December 12. Each exam will have a take-home and an in-class component.

Evaluation: There are 4 components of your final grade.

- **Class Participation (20%):** This includes class attendance, positive participation in class discussions, willingness to do in-class presentations, quality of in-class presentations, completion of daily posts to the class wiki, additional participation in the class wiki, and participation in the class discussion forum.
- **Homework Assignments (25%):** This includes calculation problems, proof problems, and projects.
- **Midterm Exams (15% each, 30% total):** This includes the two midterm exams.
- **The Final Exam (25%)**

Optional Resources: The following are free online linear algebra textbooks. I recommend not looking at them unless you are completely stuck on an assignment, and the course wiki and discussion forum have not helped you. However, any of these are preferable to using Wikipedia.

- <http://linear.ups.edu/download/fcla-electric-2.22.pdf>,
- <http://joshua.smcvt.edu/linearalgebra/book.pdf>, and
- <http://www.math.brown.edu/~treil/papers/LADW/LADW.pdf>.

Important Notes

- No late assignments will be accepted, and makeup exams will not be given. Should you be forced to miss an assignment or exam due to a legitimate excuse, it will not count toward your grade. This will have the effect of making your other assignments or exams worth more.
- I encourage you to talk to other students, the Math Center assistants, and myself about assignments. When completing written assignments to turn in for a grade, you must sit down and write up the assignment on your own after asking your questions.
- When completing take home exam components, you may use the course notes and course wiki but you may not consult any other source, be it a person, a book, or the internet. During a take-home exam, changes to the wiki and new posts on your blogs are not allowed.
- Please contact me ASAP if you will need to miss class due to a university-sponsored activity, such as athletics. Also, if you have a disability that may require an accommodation for taking this course, please contact the Learning Assistance Center (758-5929) within the first two weeks of the semester.