SYLLABUS FOR MATH 220 - LINEAR ALGEBRA

BARD COLLEGE AT SIMON'S ROCK - FALL 2012

Time: 9:00-9:55am M W F

Location: FSH-201

Instructor: Clark Musselman

Email: clark@simons-rock.edu

Office: 2nd Floor - Hall College Center

Office Phone: 528-7292

1. Course Webpage

The course webpage, located at http://bclarkm.weebly.com/teaching.html, will be updated with various documents pertaining to the course throughout the semester.

2. Required Text

Strang, *Introduction to Linear Algebra*, Fourth edition. Wellesley - Cambridge Press, Wellesley, MA, 2009.

3. Office Hours

Office hours are on Monday from 3:00-4:00pm, on Wednesday and Friday from 2:30-3:30, and by appointment. This time is reserved for you to talk to me about homework, exams, or anything else pertaining to the course. You do not need to make an appointment with me; you may simply stop by my office. If you are unavailable during my normally scheduled office hours, send me an email and we can make an appointment.

4. Course Description

This course deals with linear mathematics, including the geometry and algebra of linear equations, the mathematics of matrices, and vector spaces. The course provides an important foundation for the mathematical representation of phenomena in the social sciences and physical sciences, as well as for more advanced analysis and algebra courses. Prerequisite: Mathematics 211 or permission of the instructor.

5. Evaluation

Your grade will be based on homework and class participation (15%), two midterm exams (15% each), two team projects (10% each) and a final exam (35%). No grades will be dropped and there will be no extra credit.

There will be no make-ups given. If you must miss a quiz, exam, or final due to personal illness, a family emergency, or an official Simon's Rock sport or academic trip, you must provide official documentation (before the exam, or as soon as possible afterward if before-hand is impossible). If you do so, you may be excused from the missed quiz, exam, or final. Excuses will only be given with official documentation and only for the reasons listed above.

6. Homework

Completing homework assignments and checking your work is the single most important thing you can do to be successful in mathematics. Whether or not a given assignment is collected or graded, it is the responsibility of the student to complete every problem and to verify that every answer is correct. While it is expected that each student write up solutions on their own, it is highly recommended that students work in groups, especially on difficult problems.

Eventually, every student will require some assistance in completing their homework. Help is available in many forms. The student can talk to their classmates, see a tutor, visit my office hours, or email me. Do not let more than a day or two go by without getting your questions answered.

Homework assignments are given below and will only be announced in class in the event of a change. On occasion, some homework will be collected and given a 'check' or 'no-check'. The number of 'no-checks' a student receives will adversely affect the homework and class participation portion of their final grade.

When submitting homework, please make sure your pages are stapled together and that no additional assignments are included. If you prefer to write your homework in a notebook or on a tablet computer, then you may turn in a photo copy or a print-out of the assignment, as long as it is your original work and in your own hand writing. No notebooks or email submissions will be accepted. Also, label each problem and leave plenty of space between them. This will allow your ideas to come across more clearly. If you find yourself crossing out much of your work, please re-write the page.

7. Presentations

Two class periods after each exam, we will go over the exam in class. I will choose one student to present each exam problem on the board to the class. You will be given at least 48 hours notice. This will allow you to practice your presentation and to make corrections to your work, if need be. I am happy to meet with any student before they present to discuss their work.

Each student will be chosen once and only once throughout the semester to present a single exam problem. If there are more exam problems than available students, I will ask for volunteers or I will present them myself. If there are more students than exam problems, additional problems will be selected from the homework.

Your presentation will be graded not just on content, but also on communication and will count toward the homework and class participation part of your grade. The purpose of this exercise is not to "grill" you on content knowledge, but to help you gain experience talking about mathematics in front of your peers. If you get stuck during your presentation, I will be there to help.

8. Projects

During the semester, two group projects will be assigned. They will contain interesting and challenging problems related to class material.

Groups will be assigned by me and will include two to four students. You will be expected to work with your group members and only with members of your assigned group. The content of the project should not be discussed with members of other groups until after the project has

been submitted to me. As always, I am more than happy to meet with individual students or with entire groups to discuss the projects.

Time permitting, you will be given time in class to work with your groups. At the conclusion of the project, you will fill out a short questionnaire regarding your contributions and those of your teammates. Your contributions to the group will count towards your homework and class participation grade.

Your final write-up must be in your own writing, legible, and be written in blue or black ink. Illegible solutions will be returned to the student ungraded. The student will then have the opportunity to rewrite and resubmit their work. Late submissions, including those returned for being illegible, will be given a 5% penalty per day, until the instructor receives a legible and complete write-up.

9. Exams

Two midterm exams will be given throughout the semester. More information on each exam will be given closer to the exam date.

A final exam will be given at a date to be determined by the College. The final exam will be based on material from the entire course.

10. Attendance

Classes at Simon's Rock are interactive and all participants are adversely affected if one student is missing. As such, you are expected to attend every class. If you do miss a class, you are responsible for learning the material that was covered in your absence. You are also responsible for any quiz, exam, or in-class activity that you miss (see evaluation, above). Initally, the student should contact a classmate to determine what material was missed. Only after consulting a classmate should the student contact the instructor for extra help on missed class material. Further, if you miss three classes for any reason, The Office of Academic Affairs will be notified and you may be suspended from the course.

11. Further Information

- No calculators are allowed.
- You should expect to spend *at least* two hours working on this course outside of class for every hour in class.
- Additional details regarding the team projects and exams will be given in class at a later date.
- Academic honesty is valued at Simon's Rock. All students are expected to know and uphold the college's policies on academic dishonesty as described in the Catalogue.
- A student with special needs should feel welcome to discuss these with the instructor.
- Keep an updated copy of this syllabus. In the event that you transfer to another institution, this syllabus my be required for transfer credits to be accepted by your new institution.
- This syllabus is subject to change.

12. Calendar:

The following is a *tentative* schedule for the course along with homework problems.

Day	Date	Sections / Problems	Events
M	8/27	§1.1: 2,5,6,8,28	
W	8/29	§1.2: 1, 3, 4, 7a, 8, 11, 21, 27	
F	8/31	§1.3: 3, 4, 6, 8, 10	
M	9/3	§2.1: 1, 2, 4, 5, 8, 9, 12, 16, 33	turn in 1.1
W	9/5	§2.1 continued	
F	9/7	§2.2: 5, 6, 9, 11, 12, 13, 21, 32	
M	9/10	§2.3: 16, 17, 18, 26, and WS-1	
		§2.4: 1, 2, 3, 4, 5, 6, 7, 14	
W	9/12	§2.5: 1, 5, 7, 9, 10, 15, 16	turn in 2.1
F	9/14	Project 1	
M	9/17	§3.1: 1, 4, 6, 9, 10, 14, 26	
W	9/19	§3.2: 2, 9, 13, 14, 35, 37	turn in 2.5
F	9/21	§3.3: 10, 12, 15, 16,20	
M	9/24	§3.4: WS 2	Project 1 due
W	9/26	§3.5: 1, 5, 26, 28, 31, 32, 33, 35, 40	
F	9/28	In-class problems	WS 3 & 4
M	10/1	Review	
W	10/3	Exam 1: Chapters 1-3	
F	10/5	Presentations	
	10/6-10/14	Fall Break	
M	10/15	§5.1: 1, 3, 5, 9, 10, 15, 16, 28acd	
W	10/17	§6.1: 2-6, 8, 9, 12, 19	
F	10/19	§6.1 continued	
M	10/22	§6.2: 1-4, 6-8, 10, 11-17, 21	
W	10/24	WS 5	turn in 6.1
F	10/26	§4.4: WS 6	
M	10/29	class canceled due to weather	
W	10/31	§4.2: 1, 3, 5, 7, 11a, 13, 16, 17	
F	11/2	§4.2 continued	
M	11/5	Project 2	
W	11/7	§6.4: 2-5, 12, 13, 26	
F	11/9	§6.6: 1, 2, 3, 5, 9, 17	
M	11/12	§7.1: 3, 8, 10, 12ac	
		§7.2: 1	
W	11/14	Diversity Day	No class
F	11/16	Laplace Transforms - no homework	Project 2 and survey due
	11/17-11/25	Thanksgiving Break	
M	11/26	QR factorization	WS 7
W	11/28	Singular Value Decomposition	WS 8
F	11/30	SVD continued	
M	12/3	§10.1: 1a, 2, 3, 6, 7, 9f, 11, 14, 17ac, 19	
W	12/5	Review	collect WS 7
F	12/7	Exam 2 (10/15 - 11/30)	
M	12/10	§10.2: 1, 2, 5, 6, 8, 12	collect WS 8
W	12/12	Presentations & Final Review	Last day of class