Math 4A Spring 2013 Section Syllabus, Kennedy

April 2, 2013

Attendance: As you know, attendance is mandatory. Attendance means coming to section prepared and on time. You should have reviewed lecture material and read the associated reading. To help keep track of this, attendance will be checked and graded with Prework.

Grading: Attendance will be graded with Prework. Some times during the quarter, I may also give a quiz or request you turn in worksheets from section. I will post the prework and worksheets on my webpage http://math.ucsb.edu/~kgracekennedy/Spring2013_4A.html by Friday afternoon. Prework will be a couple of questions that cover material potentially through the previous Thursday’s lecture and upcoming homework. I will pick problems that I believe will link together what you learned, where you are headed, and in particular, questions that will help you in section each week. If you have trouble with Prework, please go to Mathlab Friday afternoon! Which brings me to how to get help in this course.

Help!:

• The Forums on GaucoSpace: These should be your first attempt to seek help: from your peers. And do them a favor. If you see a question you can answer, give it a try!

• CLAS (supplemental tutoring services): Jay Roberts and Vince Zaccone are our CLAS instructors this quarter!
  – Go to the CLAS site: http://clas.sa.ucsb.edu/
  – Sign into your CLAS login. (It’s just your UCSB information.)
  – Select a section time that works for you!
  – And finally show up and participate in sections.

• Mathlab, Monday-Friday 12-5 in South Hall 1607: This is a supplemental tutoring service run by TA’s in the math department. Myself and the other TA’s will all have hours there. (Due to scheduling issues, that are not yet resolved, this may change slightly.)
  – Ebrahim Ebrahim: R 1-3
  – Harris Ennis: F 3-5
  – K. Grace Kennedy (me): W 2-4
  – Laura Zirbel Plunkett (Head TA): T 12-1, W 1-2
  – Nathan Saritzky: T 1-3

• Office Hours: Monday 5:30-6:30 starting April 8th in South Hall 6432Q

TARDIS:

I will hand these out before the first midterm. Once you have this, you must put it on everything you turn in for this course.

Section: I will generally have you working in groups for part of section and mixing in discussion as a class. I’ll bring problems to section to supplement homework and lecture. So go ahead and push your desks together when you arrive!
**Tentative Schedule**: These are just some notes on possible section topics to go along with lecture. You can see we cannot cover everything in section that is covered in the course. (We meet for 50 minutes to discuss concepts related to 2.5 hours of lecture and 7.5 hours of homework each week.)

**Week 1** (1.1-1.3) Systems of Linear Equations (Span is covered in 1.3)
Section: Zip Car Problem to introduce systems of linear equations

**Week 2** (1.4-1.6) More on Systems and Row Reduction (with emphasis on applications and matrix equations)
Section: MAGIC CARPET RIDE! More on systems of linear equations, describing solutions as a linear combination of vectors and span.

You will need to do a lot of practice solving systems of linear equations. Section will focus on the concepts, but you must do a lot of practice on your own to master row reduction and solving systems of linear equations. What we cover in section will not be enough.

**Week 3** (1.7-1.9) Linear Independence, Linear transformation
Section: Magic Carpet Ride, Part 2: Linear Independence

We may not discuss linear transformations in section. This is not because they are not important but because we only have 50 minutes of section and must choose linear independence or linear transformations. We might discuss linear transformations on Monday before the test.

**Week 4** (Midterm - 2.1) Midterm then Matrix Operations
Section: Linear Transformation and/or Review before Tuesday’s midterm

**Week 5** (2.2, 2.3, 3.1) Inverse of a matrix, invertible matrix theorem, and Determinants in 3.1
Section: RGB Pixel for matrix multiplication, lead into properties of matrix multiplication

**Week 6** (3.2, 4.2, 4.2) Properties of determinants, vector spaces, subspaces, come back to 2.8-2.9
Section: Vector spaces or properties of determinants

**Week 7** (midterm 2, 4.3) Midterm 2 then Bases
Section: Whatever we didn’t cover last week and/or Review before Tuesday’s midterm

**Week 8** (4.4-4.6, 5.1) Coordinate Systems, Dimension, Rank, Eigenvalues/vectors
Section: Bases/ dimension, rank, coordinate systems

**Week 9** (5.2, 5.3, 6.1) Characteristic equation, Diagonalization, Inner-product (also called dot product), Length, Orthogonality
Section: Eigenvestuff and diagonalization, relation to zip car problem, RGB pixel problem

**Week 10** (6.2-6.5) Orthonormal sets, Gramm-Schmit, Least Squares
Section: Orthogonality/Orthonormal Basis, Relation of Least Squares to Previous Applications

PRINT NAME:_________________________ \hspace{2cm} TARDIS\(^1\) : ______________________

SIGN NAME:_________________________ \hspace{2cm} Perm Number : ______________________

\(^1\)I will give this to you before the first exam. Put your section day and time and the TA’s name for now.