Math 3130 — Linear Algebra
SPRING 2015 SYLLABUS

Class Location: FLMG 102, MWF 11:00–11:50 AM
Instructor: T. Alden Gassert
Office: MATH 223
Email: Thomas.Gassert@colorado.edu
Office Hours: M 3:00–4:00 PM , Tu 10:00–11:00 AM, Th 11:00–12:00 PM and by appointment.
Text: David C. Lay, *Linear Algebra and its Applications* 4th ed., Addison-Wesley, 2012.

Course goals: Linear algebra is one of the most important fields in mathematics with wide-ranging applications to nearly all areas of mathematics, physics, computer science, chemistry, biology, etc. The goal of this course is two-fold: first to develop the computational tools required to solve basic problems in linear algebra, and second to understand these computations in a broader theoretical context. One of the fundamental questions of the course is to find the solutions to systems of linear equations. From this question, we build out our understanding of vector spaces and linear transformations.

Grading: Your final grade for the course will be computed as follows:

10% Quizzes
70% Computation
20% Theory

Homework: Homework will be assigned regularly, but not collected. I will, however, give feedback on any problems you choose to turn in.

Quizzes: Quizzes will be given every 1–2 weeks in class. *Quizzes may be unannounced.* You must be in class to take the quiz; no makeups will be given.

Computation: Your mastery of computational techniques will be tested at four times during the semester. The dates for these exams are: (Monday) February 9, (Monday) March 9, (Friday) April 3, and (Wednesday) April 29. Roughly 16 topics will be covered on these exams:

- matrix algebra
- systems of linear equations
- linear independence
- linear transformations of the plane
- matrix inverse
- determinants
- null space and kernel
- column space and image

- bases, dimension, and rank
- change of basis
- eigenvectors and eigenvalues
- characteristic equation
- diagonalization
- complex eigenvalues
- Gram-Schmidt algorithm
- least squares method

(Topics may be added or omitted at time permits.)
Each of these topics will be graded on a scale of 0–4:

4: Mastery
3: Satisfactory
2: Needs improvement
0: No credit

For any topic in which you do not achieve "Mastry" level, you may reattempt the topic on the following exam, *provided you attempted the question the first time.*

Theory: Two exams will be given to test your understanding of the theory. The dates for these exams are: (Friday) March 6, (Friday) May 1.

Special accommodations, religious observances, etc.: If you qualify for special accommodations due to a disability, you will need to provide to me a letter from Disability Services. Please attend to this matter in a timely fashion.

Please inform me as soon as possible if you will miss an exam due to religious observance so that we have time to arrange a reasonable accommodation.