

COURSE DESCRIPTION
LINEAR ALGEBRA
MA 434/534–2C

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Rudi Weikard
Office: UH 4032 (this information is perhaps not very useful)
Zoom: <https://uab.zoom.us/my/rudi.weikard>
E-mail: weikard@uab.edu
Office Hours: TT 2:00 pm – 3:00 pm and by appointment

Meeting times: TT 11:00 am — 12:15 pm
Meeting location: Remote
Prerequisite: Grade of C or better in MA 126 or equivalent
Credits: 3 semester hours
Textbook: No textbook required. Lecture notes will be posted online
Canvas: <https://www.uab.edu/elearning/canvas/>
UAB United: <https://www.uab.edu/uabunited/students>

Important dates:

First day of classes: August 25 (for this course)
Last day to Drop/Add: August 31
Last day to withdraw: October 16
Fall/Thanksgiving Break: November 23 – November 29
Last day of classes: December 3 (for this course)

Course content:

- Systems of linear equations
 - Vector spaces
 - Linear transformations
 - Inner product spaces
 - Spectral theory
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Aims of the course:

The course aims for students to attain *conceptual understanding* and *procedural fluency* with regard to the basic material of Linear Algebra. *Conceptual understanding* is demonstrated by the ability to explain and develop proofs of the claims made in the lecture notes. *Procedural fluency* is demonstrated by exercising routine tasks in an assured and timely fashion. The course also emphasizes *critical thinking* and *communication skills*, both written and verbal.

Date: August 16, 2020.

Methods of teaching and learning:

- Students study the lecture notes providing missing details outside of class. A significant time commitment (certainly more than class time) is to be expected.
- Working in groups is encouraged but not required.
- Students may seek outside help (books, internet, class mates) as they see fit as long as any help is acknowledged.
- 28 class meetings of 75 minutes where students present the course material prepared in written form ahead of time.

Assessment procedures:

- (1) There are no quizzes or tests. Neither is there a Final Exam.
- (2) Points are earned through preparation of papers, presentations of papers, and course participation as explained below.
- (3) Preparation of papers:
 - (a) The material in the lecture notes is organized in about 110 topics (which are grouped in sections and chapters).
 - (b) For each topic students prepare papers and put them in an electronic format (e.g., a scan of handwritten work on paper). Up to four students may collaborate in the preparation of a paper. Papers must have a title (the title of the topic treated) and must list the author or authors.
- (4) Presentation of papers:
 - (a) Students are selected randomly to present their work. This selection occurs just before class. Since random numbers are not distributed evenly for finitely many trials I may, if necessary, intercede to get a more even distribution of selections.
 - (b) Upon being selected a student may decline to present. There is no penalty for declining except the forfeiture of the opportunity of earning points.
 - (c) Upon being selected and accepting the task students share their paper with the class explaining all details (many of which are missing in the notes).
 - (d) After the presentation the paper will be made available to everyone on Canvas.
 - (e) 20 points will be awarded for the *correct* presentation of a topic. 8 points are awarded to the presenter while the remaining points are distributed equally among the authors of the paper (including the presenter). Up to four authors are allowed per paper.
- (5) Course participation:
 - (a) Being present in class is strongly recommended in case your name is being called to be the next presenter. There is, however, no penalty for being absent except the possible forfeiture of the opportunity of earning points.
 - (b) Sometimes a presentation may involve mistakes or issues may remain unclear. Students are encouraged to ask questions for additional clarification.
 - (c) Asking a relevant question will earn between 1 and 5 points at the discretion of the instructor.

- (d) Giving correct answers is part of a successful presentation, i.e., a presentation earning points.
- (6) Letter grades in 434: If we cover all material of the lecture notes, the student with the highest score S will receive an A. An A, B, C, or D is earned by anyone who has at least 90%, 70%, 50%, or 30% of S , respectively.
- (7) Letter grades in 534: The same procedure is used in 534 except that S is replaced with $1.2S$.
- (8) Should we fall short of covering all material the highest score will earn a B.

Course policies:

- Please make sure that you are able to receive e-mails through your Blazer-ID account. Official course announcements may be sent to that address.
- If you are contacted via the Early Alert Program, you should consider taking advantage of the services it offers. Various services to assist you are also listed at <https://www.uab.edu/students/home/services>.
- If you wish to request a disability accommodation please contact DSS at 934-4205 or at dss@uab.edu.

Tips:

- By working steadily and regularly, you will increase your chances to succeed in this course.
- Remember, being a full-time student is a full-time job.
- Seek help when you need it.

COVID-19

UAB Disability Support Services (DSS) has established a process for UAB students to request temporary adjustments based on the impact of COVID-19. The process is similar to the traditional DSS registration procedures for accommodations based on disability. However, these requests will be referred to as "COVID-19 Related Temporary Adjustments". On the DSS website <http://www.uab.edu/dss>, there is a section (next to the traditional DSS application process) titled "Request COVID-19 Temporary Adjustments" where students can read the process and click to complete an application.

Disability Support Services

UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact me to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call 934-4205 or visit <http://www.uab.edu/dss>.