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Department of Mathematics

Linear Algebra 1 (MAS4105)

Welcome to LINEAR ALGEBRA 1 !

All further information will be published on Canvas.

Disclaimer: This syllabus is a subject to change and it is your responsibility to keep updated. Nevertheless, any modifications will appear in announcements on Canvas.

Instructor: Dana Bartošová **Teaching Assistant:** Jacob Kowalczyk

Instructor's Office: LIT 436 **Instructor's email:** dbartosova@ufl.edu

TA's Office: LIT 453 **TA's email:** kowalczykj@ufl.edu

Class meetings: MWF 10:40-11:30am in Matherly 0006.

Discussion session: Tu 10:40-11:30am in Matherly 0006.

Instructor's office hours: M 11:45am-12:35pm and W 1:55-2:45pm, or by appointment.

TA's office hours: TBD

Announcements on Canvas: There will be announcements with information on presentations, changes, and reminders of homework due dates.

Texts: Linear Algebra Done Wrong by Sergei Treil.

COURSE DESCRIPTION

This is an introductory course to Linear Algebra done rigorously. All results will be provided with proofs and rigorous proofs will be required in homework and exams. The topics covered will include correspondence between matrices, systems of finitely many linear equations, and linear transformations between vector spaces of finite dimensions. In order to define dimension, we will introduce linear independence, spanning sets, and basis in vector spaces. We will show what row/column reductions mean in terms of linear transformations and how to use matrices for a change of basis. We will compute determinants and explain their meaning, diagonalize matrices, look for eigenvalues and eigenvectors for spectral decomposition. The material will be demonstrated on vector spaces over the fields of real and complex numbers, however we will touch upon other fields as well.

COURSE REQUIREMENTS AND EVALUATION

Assignments: There will be 10 homework sets assigned and submitted via Canvas. Each will be worth 15 points.

Exams: There will be two in-class midterm exams, tentatively on February 7 and March 27, and a final exam on May 2. Midterms will be worth 50 points each and the final 100 points.

Quizzes: There will be 3 short quizzes during the discussion session, tentatively on January 23, February 27, and April 16 and they will be 10 points each.

Presentation: There will be group presentations with about 5 students in each team, but the members will be graded independently. Each student will have 5 minutes for their part. The suggested topics are listed below and will be scheduled in the respective order throughout the semester. Students will be expected to research and cite resources beyond the textbook. Presentations will be worth 30 points (per student).

1. Fields other than real or complex numbers.
2. Applications of linear algebra.
3. Infinite dimensional vector spaces.
4. Dual spaces.
5. Linear algebra and geometry.

Grades: Each homework (total of 10) will be 15 points, each quiz (total of 3) 10 points, each midterm (total of 2) 50 points, final 100 points, and the presentation will be 30 points; in total 410 points. The grades will be distributed as follows: A above 90%, A- 85-89%, B+ 80-84%, B- 75-79%, C+ 70-74%, C 65-69%, C- 60-64%, D+ 55-59%, D 52-54%, D- 50-51 %, E, I, NG, WF 49% and below. For university grading policies see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies.

DIVERSITY, EQUITY, AND INCLUSION STATEMENT

I am committed to diversity and inclusion of all students in this course. I acknowledge, respect, and value the diverse nature, background and perspective of students and believe that it furthers academic achievements

It is my intent to present materials and activities that are respectful of diversity: race, color, creed, gender, gender identity, sexual orientation, age, religious status, national origin, ethnicity, disability, socioeconomic status, and any other distinguishing qualities.

HONOR CODE

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Click here to read the Honor Code. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

CLASS ATTENDANCE

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. Click here to get started with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

ONLINE EVALUATIONS

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Click here for guidance on how to give feedback in a professional and respectful manner. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students here.

HEALTH AND WELLNESS

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-

1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,

Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website

ACADEMIC RESOURCES

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

On-Line Students Complaints: View the Distance Learning Student Complaint Process.