

MTH 215: Introduction to Linear Algebra

Section 0004 – Spring 2018

- Instructor:** Dr. Vasilije Perovic
- Email:** perovic@uri.edu (*preferred way of communication*)
- Email Policy:** The **only** address that should be used for communication is the one associated with your URI account.
- Office:** Lippitt Hall, 200B ☎ (401) 874-4463
- Office Hours:** **Tue: 3:30pm – 4:30pm;** **Wed: 10:00am – 12:00pm;** **Thur: 10:00am – 11:00am.**
You may also see me at other times by arrangement.
- Classroom:** Pastore Hall 208; Tue/Thur: 12:30pm – 1:45pm.
- Class Website:** This course will use **SAKAI** which should be checked regularly for announcements, grades, updates, lecture notes, etc! You might also find the following website helpful
http://math.uri.edu/~perovic/Teaching/Spring2018/MTH215_Spr18.html
- Prerequisite:** MTH 131 or MTH 141 or MTH 180 or equivalent is **required**. MTH 141 is desired.
- Textbook:** *A First Course in Linear Algebra* by Lyrys Learning (based on original text by K. Kuttler).
This is a **FREE** textbook – the version we will use is posted on SAKAI.
Any supplemental material will be posted on SAKAI.

Bring the textbook to each class, since we will refer to it frequently. It is essential to read the text regularly, and read material before we cover it in class!

Course Rationale: Motivated by the geometry of two and three dimensions, linear algebra is the simplest context in which a theory of great beauty and utility can be developed. A clear understanding of the concepts of linear algebra is central to the understanding of all mathematical and physical phenomena in higher dimensions; and the algorithms of linear algebra are at the heart of much of scientific computing. Finally, a first course in linear algebra also serves as an introduction to the development of logical structure, deductive reasoning, and mathematics as a language. For many students, the tools of linear algebra will be as fundamental in their professional work as the tools of calculus.

Course Description: We begin with a study of systems of linear equations, and techniques for solving them. Formulating such systems as matrix equations leads to the study of matrix algebra, and the more abstract concepts of vector spaces and linear transformations. The important concepts of orthogonality*, eigenvalues and eigenvectors will also be studied. We will also learn how to do simple proofs.

Syllabus: We will cover *selected* sections from Chapters 1–13 (excluding chapter 3). Time permitting*, we will include some topics from Chapters 14, 15, and 16.

Computing: Calculators are not required and will not be allowed on quizzes and exams. We might use mathematical software MATLAB or OCTAVE.

Attendance: Regular, on-time attendance is expected! Attendance will be taken regularly. Should you miss class, your first step should be to get notes from a reliable fellow student.

General Advice: In linear algebra, the *concepts* are as important as the *computations*. To master the concepts, you will have to read and reread the text carefully. You will quickly realize that linear algebra is a *language* – new terms and definitions will be introduced in practically every class. You are expected to learn to use this language with precision, and that requires daily practice on your part. It will be difficult to keep up unless you put in extra effort outside of class. A general rule of thumb is to put in two to three extra hours for each hour of class, but you may require more than that, because of the nature of the abstract mathematical concepts you will need to understand. Other's solutions is a very effective way to learn the subject.

A clear understanding of the definitions and theorems is essential to success in this course. For each section, make a list of the definitions and theorems in the section. Then study the list until you are thoroughly familiar with it. The study guide will help you do this; it also provides hints and partial solutions to selected exercises from our textbook. You are encouraged to form study groups. Talking about mathematics, and critiquing each other's solutions is a very effective way to learn the subject.

Suggested Problems: Regularly assigned, but not collected or graded. Do problems promptly so that you establish a baseline for your understanding of the material. By default, *all solutions must include reasoning expressed in complete sentences*. Suggested problems, together with the material presented during lectures, will be the main sources for problems on quizzes and exams.

Video Lectures/Notes: In case our class is canceled due to inclement weather or any other reason, I might post a link on SAKAI to a video lecture (resp., handout) that you will be responsible for watching (resp., reading).

Occasionally, optional extra-credit problems may be assigned. Points earned will be added to your cumulative quiz total. The work you submit must be your own. (Please read the section on Academic Integrity included in this handout.) Be advised that these problems will be more challenging than the average homework problem, and will often cover topics we did not have time to cover in class. Grading will be strict – illegible solutions or solutions without statements and reasoning will be returned ungraded. Spending time on extra-credit problems before you have successfully finished the assigned homework problems is counterproductive, and will hurt rather than help your grade.

Grading, Exams, and Quizzes: The course grade will be based on **quizzes**, **micro-quizzes**, **project(s)**, two **in-class exams**, and a **final exam**, weighted as follows:

Quizzes	20%	
Micro Quizzes	5%	
Project(s)	5%	
Exams (2)	40%	(20% each)
Final Exam	30%	(Tuesday, May 8, 11:30am - 2:30pm)

Quizzes will be either in-class, typically every Thursday, or will be take-home. The lowest quiz score will be dropped, and so **no make-up quizzes** will be given for any reason. You will be notified at least two class periods in advance to having an in-class quiz. **Micro quizzes** will be unannounced and will typically take 2-3 minutes at the beginning of the class. The sole purpose of micro quizzes is to motivate you to come prepared to class and to quickly assess your basic understanding of the current material. More information on **project(s)** will be given later in the semester.

A *tentative* schedule for the **in-class exams** is:

Exam 1: February 27 (Tuesday)

Exam 2: April 12 (Thursday)

Makeup exams will be permitted *only* in those cases when a student documents a *genuine medical or personal emergency*. In such a case you must notify instructor of your emergency within 24 hours of the day of the exam.

Letter grades for the course will be determined by considering your overall weighted percentage according to the following scale:

A: 93.00% and above		A-: 90.00% – 92.99%
B+: 87.00% - 89.99%	B: 83.00% – 86.99%	B-: 80.00% – 82.99%
C+: 77.00% – 79.99%	C: 73.00% – 76.99%	C-: 70.00% – 72.99%
D+: 67.00% – 69.99%	D: 60.00% – 66.99%	
F: 59.99% and below		

Any questions or concerns regarding your course grade should be discussed well before the final exam. Once the final exam is administered, your grade is final and no makeups or extra credit will be offered. Additionally, incompletes will not be given to students who are dissatisfied with their grades at the end of the semester, and grades of NW will not be given to students who have completed even a single assignment.

Incomplete Grade: University of Rhode Island regulations concerning incomplete grades will be strictly followed (see University Manual sections [8.53.20](#) – [8.53.21](#) for details). Note that a student must be passing the course before an incomplete is even an option.

Important Dates: Please pay close attention to the following dates:

February 12 – Last day to DROP courses with NO TRANSCRIPT DESIGNATION.

March 5 – Last day for students to DROP course with “W” designation.

March 12 – 18 – Spring break (classes do not meet).

April 26 – Last day of instruction *for this class!*

May 8 – Final exam *for this class!*

Accommodations: Any student with a documented disability (e.g., physical, learning, vision, hearing, etc.) who needs to arrange reasonable accommodations should contact me as soon as possible. At the beginning of the semester students should contact Disability Services for Students Office at 330 Memorial Union, (401) 874-2098, <http://www.uri.edu/disability/dss/>.

Academic Integrity: You are responsible for making yourself aware of and understanding the policies and procedures in the University Manual that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. Further information can be found in the UNIVERSITY MANUAL sections on Plagiarism and Cheating at

<http://web.uri.edu/manual/chapter-8/chapter-8-2/>