University of Rhode Island
MTH 215 Section 1000: Introduction to Linear Algebra (Online)
Syllabus Summer 2024 – James Baglama

Instructor Information		Course Information	
Instructor:	James Baglama	**Course/Section:**	MTH 215 Section 1000
Email:	jbaglama@uri.edu	**Days:**	May 20 – June 21 (2024)
Office:	Lippitt Hall 202J	**Class Location:**	Online asynchronous
Office Hours:	By appointment via Zoom. A Zoom meeting requires a request and confirmation from me via email https://uri-edu.zoom.us/my/baglama	**Prerequisites:**	MTH 131, 141, or 180

Information about taking this Course Online

Brightspace: Brightspace is being used to teach this course. That is, for this online course, Brightspace is our "classroom." Please refer to the Brightspace YouTube video tutorials before you get started and refer back to them as a resource as needed while you complete this course.

Brightspace Help: Here is the link to access Brightspace https://brightspace.uri.edu as well as the Brightspace resource page https://web.uri.edu/brightspace/. You can also call the Help Desk at 401-874-4357. Remember to use Firefox or Safari as your browser as there have been compatibility issues with Internet Explorer. Firefox works on both PC and Mac.

Technology Requirements: This is an *online* course and thus to successfully complete it, you will need access to a computer with reliable, high-speed Internet access and appropriate system and software to support the Brightspace learning platform. *You should have the ability to upload your handwritten work as a single PDF and view pdfs (Adobe Acrobat).* The easiest way of doing this is by scanning handwritten pages as pdf files, or alternatively writing on a tablet directly. If you have a tablet or a smart phone you can download various FREE applications (e.g., Scannable or Office Lens) that allow you to scan documents as pdf files. For additional details see end of syllabus.

Classroom Protocol: For this online course, Brightspace is our "classroom." All the course material (videos, examples, lecture notes, assignments, quizzes) can be accessed through the course Brightspace shell. Most importantly, all assignments **MUST** be submitted through Brightspace using the Assignments link and all Exams will be online through the Quizzes link within Brightspace.

This class is entirely asynchronous online. What that means is that you can work on the material at your own pace at a time that is convenient to you. However, there are **deadlines** for submissions and new material is only made available at the start of the week– see the course outline in Brightspace for details.

Online Attendance: In the online learning environment, "attendance", although not required, is measured by your PRESENCE in the site as well as your CONTRIBUTIONS to the course (submission of course material). The importance of regular logins and active participation (working weekly on new material) cannot be overstated. I recommend that you get in the habit of daily attendance online to maximize your successful completion of the course.

Communication: Taking an online course can be very difficult. One way to make this easier for everyone is to have a clear line of communication. I know that you are bombarded with emails every day, but emails are the main form of communication for this class. Please make sure you read ALL emails from me – there will be very important information in those emails. I will respond to all student's emails within 24 hours (during the weekdays). Email is not a text so do not expect immediate response nor expect response late in the evenings or on the weekends.

Video Lectures and Guided Notes: I have created short video lectures and provided guided notes for all sections. The links are posted in the modules in the Brightspace course website. The video lectures are to help with worksheets, online homework, and exams.

Information about MTH 215 Linear Algebra Course and Assessments

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Course/Catalog Description: Detailed study of finite dimensional vector spaces, linear transformations, matrices, determinants and systems of linear equations. (3 credits)

Course Rationale: In linear algebra, the *concepts* are as important as the *computations*. 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, definitions, and theorems of linear algebra is central to the understanding of all mathematical and physical phenomena in higher dimensions; the algorithms of linear algebra are at the heart of much of scientific computing.

Learning Outcomes: At the end of the course the student should be able to:

1. *solve* a linear system of equations by using row operations;
2. *represent* linear systems in different formats;
3. *compute* basis vectors and *determine* linear independence of vectors;
4. *write* general solutions to linear systems;
5. *perform* matrix and vector operations (addition, subtraction, multiplication, scalar multiplication, and dot product);
6. *compute* the inverse of matrix;
7. *co*mpute rank and null space of a matrix;
8. *work* with linear transformations;
9. *work* with vector spaces and subspaces;
10. *compute* determinants and *describe* their various uses;
11. *compute* eigenvalues and eigenvectors;
12. *use* technology to analyze methods and *perform* calculations;
13. *communicate* effectively in written form mathematical ideas and conclusions, by stating in a complete, clear, concise, and organized manner steps, calculations, solution strategy, conclusions, and when appropriate, interpreting results in practical or applied terms.

Textbook (Recommended): **Linear Algebra and Its Applications** by Lay, Lay, and McDonald, fifth edition, Pearson Publishing. ISBN-13: 978-0321982384. *Fourth edition is fine too.* Make sure to carefully review "Syllabus & Info" Module in Brightspace for textbook related resources!!!

Academic Enhancement Center (AEC) Tutoring: For more information on AEC tutoring services for MTH 215 visit the AEC website at http://web.uri.edu/aec/

Linear Algebra Software (Very Helpful): We will occasionally make use of the linear algebra software interactive packages, **OCTAVE** and/or **MATLAB**. **OCTAVE** is an open source (i.e. free) software primarily intended for numerical computations. You can also use **MATLAB** – URI has a campus-wide license and is free to all students. No previous programming experience is required for either. **OCTAVE** and **MATLAB** are essential the same.

- **OCTAVE**
  - **OCTAVE online** http://octave-online.net/
  - **OCTAVE for computers** https://www.gnu.org/software/octave/
- **MATLAB**: MATLAB Portal

Expectations/Policies: You are expected to submit your work **on time**. Late work will not be accepted without valid reason (see attendance and make-up policy). It is your responsibility to clearly communicate your solutions for worksheets, project, and exams. Your results (answers) must display an understanding of the material and be written in a correct, complete, coherent, and well-organized fashion.

Makeup Policy: Makeup exam may be scheduled in the event you are unable to take an exam under the following conditions. See University Manual 8.51.10 to 8.51.14 for guidelines.

- If the reason for missing the exam as scheduled is (i) a University sanctioned event for which verifiable documentation can be provided, (ii) a responsibility to an employer or scheduled job interview that cannot be rescheduled, or (iii) Religious holidays, then you must inform your instructor 48 hours in advance of the exam.
- If the reason for missing the exam as scheduled is due to (i) illness, or (ii) an emergency, then you must contact your instructor (via email) within 24 hours of the exam. If the illness or emergency prevents contact within 24 hours then contact is required as soon as possible. Prolonged absence (e.g. missing 2 or more classes) will require documentation for make-up work. Makeup exams process will follow the University Manual 8.51.10 to 8.51.14.
- Missing an exam for reasons not listed above and failure to notify your instructor within 7 calendar days of your absence will result in a 0 for the exam, see University Manual 8.51.14.
- Students that miss course work (not exams) under the same the conditions mentioned above (e.g. illness) will be given an opportunity to make up the course work. Due dates will be discussed and determined on an individual basis.

Intellectual Property: All course materials which students have online access are protected by copyright laws. Students may use course materials and make copies for their own use as needed, but unauthorized distribution or uploading of materials without the instructor's express permission is prohibited. Students who engage in the unauthorized distribution of copyrighted materials may be held in violation of the University Manual 8.27.22. and/or liable under Federal and State laws.

Academic Honesty Policy: Cheating is defined in the University Manual 8.27.10 as the claiming of credit for work not done independently without giving credit for aid received, or any unauthorized communication during examinations. All submitted work must be your own. **Suspicious scores and/or answers will require additional explanation and verification of independent work.** Students are expected to be honest in all academic work. A student's name on any written work, or exam shall be regarded as assurance that the work is the result of the student's own independent thought and study. Work should be stated in the student's own words. Students have an obligation to know how to quote, paraphrase, summarize, cite and reference the work of others with integrity.

Artificial Intelligence (AI): Use of an AI Generator such as ChatGPT is explicitly prohibited for this course. The information derived from these tools is based on previously published materials. Therefore, using these tools without proper citation constitutes plagiarism. It's imperative that all work submitted is your own. Any assignment that is found to have to have used AI tools will be reported for academic misconduct.

Accommodations for Special Needs: Your access in this course is important. Please send me your Disability, Access, and Inclusion (DAI) accommodation letter early in the semester so that we have adequate time to discuss and arrange your approved academic accommodations. If you have not yet established services through DAI, please contact them to engage in a confidential conversation about the process for requesting accommodations in the classroom. DAI is in room 302 of the Memorial Union, 401-874-7400, https://web.uri.edu/disability/ email: dai@uri.edu

Incomplete Grade: University of Rhode Island regulations concerning incomplete grades will be followed. See University Manual 8.53.20 - 8.53.24 for details.

Religious Holidays: It is the policy of the University of Rhode Island to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to observe a holiday of special importance must provide written notification to your instructor.

Standards of Behavior: Students are responsible for being familiar with and adhering to the published Community Standards of Behavior: University Policies and Regulations" which can be accessed in the University Student Handbook http://web.uri.edu/studentconduct/university-student-handbook/

Anti-Bias: We respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive. If you are a target or a witness of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at www.uri.edu/brt. There you will also find people and resources to help.

Grading Policy: Grades will be determined through a weighted average with categories and weights as follows:

10% Projects
15% Worksheets (Brightspace -> Assignments)
15% Online Homework (Edfinity)
15% Exam 1 **(Available Online 12am May 29 (Wed.) – May 31 (Fri.) by 11:59pm)**
15% Exam 2 **(Available Online 12am June 12 (Wed.) – June 14 (Fri.) by 11:59pm)**
30% Final Exam **(Available Online 12am June 18 (Tues.) – June 21 (Fri.) by 11:59pm)**

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

92% - 100%	A	72% - 76%	C
90% - 91%	A-	70% - 71%	C-
87% - 89%	B+	67% - 69%	D+
82% - 86%	B	60% - 66%	D
80% - 81%	B-	<= 59%	F
77% - 79%	C+		

Project (10% of the total grade): The goal of the project is to use the concepts from linear algebra to solve a real life application. You can work in groups, no more than 4 students per group. You should use a computer software system (OCTAVE or MATLAB) to solve these applications. The project must be submitted through Brightspace using the Assignment tool and **ALL** members of the group must upload the project. Do NOT email the project to me. The project must have a list of all the names of students in your group. I will not accept a late or incomplete project.

	Project	**Due Date**
	Project (Graphs) – see Brightspace Assignment tool	11:59pm June 14 (Fri.)

Worksheets (15% of the total grade): The worksheets are designed to help you understand material and are aligned with the Learning Outcomes to provide practice and feedback. The worksheets are downloadable from the Assignment tool within Brightspace as a pdf file. There is a worksheet for every section of the textbook. All worksheets are due by 11:59pm on the due date. The course outline in Brightspace lists the due dates for all worksheets. The worksheets will have one or two problems based on the lecture videos and notes that are provided with the course. All worksheets MUST be submitted through Brightspace using the Assignment tool. Do NOT email the worksheets to me.

ONLINE Homework Edfinity (15% of the total grade): Homework will be available through Edfinity. Go to the Edfinity Module in Brightspace course website for registration and login instruction. The cost for the online homework system is $29. Follow the instructions at Edfinity and contact them for technical support about the platform.

Here are some things to keep in mind.

- Each week in Edfinity you will be required to do around 35-50 questions from the sections covered in the previous two/three classes. These problems might be as a single assignment or multiple assignments, but cumulatively would be roughly the same.
- *For content questions, please email me. Use "Email Instructor" button and attach your work.*
- For each problem, except true/false and some multiple-choice questions, you will be allowed **TWO** attempts. Note that you can practice that question within Edfinity before you even attempt the problem (look for Practice similar button in the upper left corner).
- There is no late submission, unless previously arranged with the instructor and for a valid reason. Always check with the instructor first if your reason is valid.
- Due dates are posted in the course outline in Brightspace. All assignments are due by 11:59pm on due date. Each problem will allow **TWO** attempts. Majority of the problems are equally weighted, though occasionally a certain multipart problem will be worth slightly more.

  Your final Edfinity score will be determined as follows:

Your % of correct answers in Edfinity	**Recorded % in Brightspace Gradebook**
94% - 100%	100%
88% - 93.99%	95%
81% - 87.99%	90%
75% - 80.99%	85%
69% - 74.99%	80%
60% - 68.99%	70%
<60%	your score + 10%

- Here are some examples:
    - If you answer correctly 96% or more of the Edfinity problems, then you will receive 100% for the Edfinity component of the final grade in Brightspace.
    - If you answer correctly 79% of the Edfinity problems, then you will receive 85% for the Edfinity component of the final grade in Brightspace.
    - If you answer correctly 42% of the Edfinity problems, then you will receive 52% for the Edfinity component of the final grade in Brightspace.

- *Any problem with technical issue will be removed altogether from the calculations.*

Exams (30% of the total grade): There will be two semester exams and a comprehensive final exam. Each exam is worth 15% of your grade, and the final exam is worth 30% of your grade. **Brightspace Quizzes/Assignments** will be used for all exams and the final exam. Exams and final exam are online non-proctored exams. You can take the exams anytime during the availability listed below and use any of the material or resources (notes, textbook, worksheets, MATLAB/OCTAVE) used in the course.

Exam 1 (15%) - Available online for 3 days.

- **Date:** *Available* online on 12:00 am on May 29 (Wed.)
  Due by 11:59pm on May 31 (Fri.)
- **Time limitation** is 1.5 hours (90 minutes).

Exam 2 (15%) - Available online for 3 days.

- **Date:** *Available* online on 12:00 am on June 12 (Wed.)
  Due by 11:59pm on June 14 (Fri.)
- **Time limitation** is 1.5 hours (90 minutes).

Both Exams 1 & 2 will consist of *30 multiple choice questions,* and you will have two attempts on the exam. The best score will be recorded. *On ALL exams, multiple choice questions will be displayed one per page and you cannot go backwards to a previous problem. System will warn you of this option.*

Final Exam (30% of the total grade) - Available online for 4 days.

- **Date:** *Available* online on 12:00 am on June 18 (Tues.)
  Due by 11:59pm on June 21 (Fri.)
- **Time limitation** is 3 hours (180 minutes).
- **Final Exam** consists of 50 multiple choice questions and you will have two attempts on the exam. The best score will be recorded. *On ALL exams, multiple choice questions will be displayed one per page and you cannot go backwards to a previous problem. System will warn you of this option.*

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

2024 Summer Calendar	
Classes Begin	Mon, May 20
Last Day to Drop	Fri, May 31
Memorial Day - no class Mon. May 27 – Mon. class meets Fri. May 31	
Juneteenth - no class Wed. June 19 – Wed. class meets Fri. June 21	
Last Day of Classes	Fri, June 21

PDF Files: How to do it and what not to do when uploaded digital files in Brightspace

For majority of the assessments in this course, you will need to submit handwritten work as a SINGLE pdf file in Brightspace. *If you are used to and/or have access to a tablet, you may use that to write your solutions and export them as a pdf.* If you already have experience working with pdfs, feel free to skip the text below. There are several ways one can convert handwritten notes into a pdf file. Here are some that I know of, all **FREE**.

1. Of course, one can use a scanner if available.
2. Using a smart device, e.g., phone or a tablet. The following are some FREE applications:
    a. Apple iOS – Scannable
    b. Android – ScannerApp (Basic is all you need!)
    c. Apple iOS and Android – Office Lens (this is a Microsoft product which can be installed freely with your URI credentials. Furthermore, documents can be synced with your One Drive account or emailed).

    Whichever application you choose, *you should **NOT** have to purchase it!*
3. If none of the above options work, then you can do the following:
    a. Take clear photos of individual handwritten pages.
    b. Import each photo in a single Word document (one photo per page, enlarged as much as possible covering the entire page).
    c. Export/save the Word document as single pdf properly titled.
4. If you need to combine multiple pdfs into a single pdf file or rearrange/delete some pdf pages you can use the following website https://www.pdf2go.com (DO NOT PURCHASE anything!)