

*Course Information*

<b>Course Number:</b>	Math 3320
<b>Course Name:</b>	Linear Algebra
<b>CRN:</b>	28854
<b>Location:</b>	MCS 211
<b>Class Hours:</b>	10:50am-12:05pm TTh
<b>Textbook:</b>	Linear Algebra with Applications by Holt, second edition
<b>Prerequisites:</b>	Math 1497 or Math 2330

*Instructor Information*

<b>Name:</b>	Dr. Jeffrey Beyerl
<b>Office Location:</b>	MCS 237
<b>E-mail:</b>	jbeyerl@uca.edu
<b>Phone:</b>	501-450-5652

**Course Description**

This course is required for all majors in mathematics, physics, and computer science. This course introduces matrix algebra, vector spaces, linear transformations, and Eigenvalues. Optional topics include inner product spaces, solutions to systems of differential equations, and least squares.

**Office Hours**

My availability changes every day. Go to the website below for up to date availability. When you schedule an appointment, please specify what you're coming for.

Walk-ins are also welcome: if my office door is open, I'm available. However, if somebody with an appointment comes, they will receive priority.

Office Hours Website: <https://ucamath.youcanbook.me/>

**Course Objectives and Requirements**

The primary objective in this course is to understand linear systems, linear spaces, linear operators, and matrix algebra.

**Software Requirements**

For the most part tests and quizzes will be designed to be completed without the aid of technology. However, some tests/quizzes will have a technology portion. For the technology portion you will need access to a computer algebra system. Wolfram Alpha will be used in class; other options include calculators such as TI-89, TI NSpire CAS or software packages such as Maple, Mathematica, R, MATLAB, Octave, Sage and others.

## Grading Policy

- **Make Ups**  
Make-up tests/quizzes will only be given for official university events or personal emergencies. In the former case the test must be taken before official test date, in the latter case a short letter explaining why you missed the test, why this justifies a make-up, and supporting documentation must be turned in by the day you're able to return to class. In the event that a make-up is justified, it must be taken before you are able to return to class. At his discretion, the instructor may choose to administer a make-up test or use the final exam to replace the make-up.
- **Borderline Grades**  
Borderline grades will be determined based on the final exam and/or the quality of your work throughout the course.
- **Oral Problem Presentations**  
Oral problem presentations are in Dr. Beyerl's office. Each student will sign up for a time to meet with the instructor. There will be one problem presentation near the beginning of the course, and one near the end of the course.
- **Homework**  
Homework problems will be assigned on a weekly basis. Some problem(s) will be graded for correctness; others will be graded for completion.

Test 1	10%
Test 2	15%
Test 3	15%
Quizzes	10%
Oral Problem Presentations	5%
Homework	10%
Project	10%
Final Exam	25%

## Student Learning Objectives

Students who complete this course will have knowledge

- about various properties of matrices including but not limited to:
  - Solving linear systems in a systematic manner.
  - Determining linear dependence and independence of vectors.
  - Relating vectors to relevant vector spaces.
  - Finding and meaningfully interpreting the dimension of a vector space.
  - Demonstrating the duality between linear operators and matrices.
  - Performing algebraic operations on matrices.
  - Finding bases and performing a change-of-basis.
  - Finding and meaningfully interpreting determinants.
  - Finding eigenvalues, eigenvectors, and describing their nature.
  - Diagonalizing a matrix and find powers of matrices
- to solve system of linear equations using matrices.
- to use system of equations to model various applications

## Important Dates

Last day to Drop Drop means the course is not on your record	January 16 <sup>th</sup>
Oral Problem Presentation 1	January 28 – Feb 1
<b>Test 1</b>	<b>February 14<sup>th</sup></b>
<b>Test 2</b>	<b>March 14<sup>th</sup></b>
Last day to Withdraw Withdraw means the course is on your record with a “W” but does not factor into your GPA	March 29 <sup>th</sup>
Project First Version Due	March 29 <sup>th</sup> (11:59pm)
Oral Problem Presentation 2	April 1 – April 5
<b>Test 3</b>	<b>April 18<sup>th</sup></b>
Project Presentations	April 23 <sup>rd</sup> & 25 <sup>th</sup>
Project Final Version Due	April 26 <sup>th</sup> (11:59pm)
<b>Final Exam</b>	<b>Thursday May 2<sup>nd</sup></b> <b>11am-1pm</b>

## Outside of class resources

- The Textbook
  - Description of material
  - Example problems
  - Exercise problems
  - Homework problems
- Blackboard
  - Quiz/test solutions
  - Notes from class
- Office Hours
  - Individual help
  - Availability changes every day. See <https://ucamath.youcanbook.me/> for up to date availability
- Previous course materials
  - <http://faculty.uca.edu/jbeyerl/courses.html>
- The Math Resource Lab
  - Study Area
  - Tutors available throughout the day
- Academic Success Workshops (every Tue at X-period)
  - <http://uca.edu/studentsuccess/academic-success-workshops/>
- Online Success Workshops (reading strategies, note-taking skills, test prep, etc!)
  - <http://uca.edu/studentsuccess/academic-success-workshops/>
- Peer Coaching (time management skills, study skills, motivation!)
  - <http://uca.edu/studentsuccess/successcoaching/>
- Communication Skills (oral and written)
  - <http://uca.edu/cwc/>

**Attendance Policy**

Your active participation in this course is expected and required for you to learn the material and earn a passing grade. If you miss more than two weeks of class meetings throughout the term, you may be administratively dropped from the course.

**Academic Integrity Statement**

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the Student Handbook. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

Academic integrity is taken seriously: cheating on a test or project will result in a failing grade in the course; allowing another student to copy off of your test will result in a one-letter-grade penalty.

**Americans with Disabilities Act Statement**

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the UCA Office of Disability Services, 450-3613.

**Title IX disclosure:**

If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: <https://uca.edu/titleix>. \*Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.

**Sexual Harassment and Academic Policies Statement**

All students are required to familiarize themselves with the University of Central Arkansas policy on sexual harassment and on academic policies. These policies are printed in the Student Handbook.

**Building Emergency Plan Statement**

An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at <http://uca.edu/mysafety/bep/>. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.