

CATALOG INFORMATION

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Dept & Nbr: MTH 214 Title: LINEAR ALGEBRA

Full Title: Linear Algebra

Units	Course Hours	Per Week	Nbr of Weeks	Course Hours	Total
Max: 4.0	Lecture	4.0	17	Lecture	68.0
Min: 4.0	Lab	0.0		Lab	0.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	4.0		Contact Total	68.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic
Grading: GC Credit course for grade or CR/NC
Repeatability: 00 No repeatability allowed or defined
Also listed as:

CATALOG DESCRIPTION:

Topics include the theory of matrices, solutions of systems of linear equations, determinants, eigenvalues, eigenvectors, vector spaces, linear transformations, and applications. Math 214 is primarily for majors in mathematics, engineering, and computer science. Course provides students with useful tools for MTH 215. Use of graphing calculators will be essential for the course.

PREREQUISITES:

MTH 211.

COREQUISITES:

RECOMMENDED PREPARATION:

No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Prerequisites: MTH 211.

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Transfer Credit: CSU; UC. (CAN MATH 26)

ARTICULATION and CERTIFICATE INFORMATION

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ASSOCIATE DEGREE: Effective: FALL 2004 Inactive:
Area: D2 COMMUNICATIONS & ANALYTICAL THINKING

- d. Invertibility
- e. Elementary matrices
- f. Applications
- 2. Determinants
 - a. Definitions and properties
 - b. Evaluation by row reduction
 - c. Cofactor expansions
 - d. Cramer's rule
- 3. Vector spaces
 - a. Definition and properties of real vector spaces
 - b. Subspace, span, and linear independence
 - c. Bases, dimension, rank, and change of bases
 - d. Orthonormal bases, Gram-Schmidt process
 - e. Inner product spaces
 - f. Applications
- 4. Eigenvalues and eigenvectors
 - a. Definitions and properties
 - b. Characteristic equations
 - c. Diagonalization of matrices
 - e. Orthogonal diagonalization
 - f. Applications
- 5. Linear transformations
 - a. Kernel, range, rank plus nullity theorem
 - b. Matrix representation of linear transformations

ASSIGNMENTS:

READING ASSIGNMENTS:

Students will have daily reading assignments on each instructional unit from required text(s), or instructor-chosen supplementary materials.

WRITING ASSIGNMENTS:

1. Daily homework problem assignments for each instructional unit.
2. Student-developed projects using appropriate course techniques to solve applications problems.

OUTSIDE ASSIGNMENTS:

1. Completion of reading and writing assignments as detailed above.
2. Preparing for in-class presentation of project.
3. Preparing for course examinations.

METHOD OF INSTRUCTION:

Instructional Methodologies may include, but are not limited to:

1. Lecture presentations and classroom discussion on the various techniques used in Linear Algebra.
2. Lecture presentations on utilization of graphing calculators in support of various course topics.
3. In-class problem solving demonstrations followed by instructor guided critique and analysis.
4. Instructor guided, small group explorations of applications relevant.

METHODS OF EVALUATION:

1. Evaluation of homework problem assignments for understanding of

terminology, knowledge of subject matter, and ability to perform manual or technological methods of solution. 2. Evaluation of student-developed projects for ability to choose an appropriate method of solution, and for ability to correctly interpret solutions in a physical situation. 3. Evaluation of occasional tests and a final examination for understanding of terminology, knowledge of subject matter, ability to choose an appropriate method of solution, and ability to perform manual or technological methods of solution.

BASIS FOR GRADING:

The assignment of a grade is based on the level of achievement of the outcomes and objectives of the course outline and is reflected in quantifiable terms in the course syllabus.

REPRESENTATIVE TEXTBOOKS:

Linear Algebra And Its Applications, 3rd Ed., Lay, David, Addison-Wesley.

REASON FOR REVISION

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The current allotment of only three unit hours is insufficient to deliver the minimum requirements. An additional hour per week would allow the course to be presented, with the requirements met, and allowing time for student/instructor. The experience over the last two offerings (and current 3rd) indicate that this change is necessary.

RESOURCES REQUIRED

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MISCELLANEOUS

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Advisory generate desc:	N	NO
Area department:	MTH	MATHEMATICS
Audit flag:	N	NOT AUDITABLE
Basic skills:	X	NOT BASIC SKILLS
Classification:	A	Liberal Arts and Sciences
Cost level:	00	VALUE NOT FOUND
Disciplines:		MATHEMATICS
Division:	02	MERIDITH RANDALL
Faculty service areas:		MATHEMATICS
Fee:	\$0.00	
In-service:	X	NOT IN-SERVICE
Level below transfer:	X	NOT APPLICABLE
Matric-requiring:	X	Exempt from assessment
Maximum class size:	0	
Maximum wait list:	0	
Method of instruction:	02	LECTURE
Non-credit category:	X	NOT APPLICABLE, CREDIT COURSE
Open entry/exit:	N	Not open entry/exit
Pacs activity:	1701	MATHEMATICS GENERAL
Pacs program project:	0000	
Preq/coreq generate desc:	N	NO
Preq/coreq provisional:	N	NO

Preq/coreq reg check: Y PREREQUISITE RULES EXIST
Repeat group id:
Requires instructor sig: N INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification: E Non-occupational
Selected/special topic: N NOT A SELECTED TOPIC COURSE
Special class: X NOT A SPECIAL COURSE
TOP code: 1701.00 MATHEMATICS ,GENERAL
Workload: 0.0000