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| **PROFESSOR:**        | **PHONE NUMBER:**        |
| **OFFICE LOCATION:**        | **E-MAIL:**        |
| **OFFICE HOURS:**        | **SEMESTER:**        |

1. **COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:**

**Mas 3105 Linear algebra (3 CREDITS)**

This course is an introduction to the basic concepts and theorems of linear algebra. It is intended to provide in depth background knowledge for students who are majoring in secondary mathematics education, science, engineering and mathematics.

1. **PREREQUISITES FOR THIS COURSE:**

**MAC 2312 with a minimum grade of “C” or higher; Prior to enrolling in any upper level course (course number beginning with a 3 or 4), students must complete the following courses with a grade of “C” or better: ENC 1101 English Composition I, ENC 1102 English Composition II, and three semester hours of college level mathematics; or permission from the appropriate academic dean.**

**CO-REQUISITES FOR THIS COURSE:**

None

1. **GENERAL COURSE INFORMATION:** Topic Outline.
* Systems of linear equations
* Matrix algebra
* Determinants
* Vector spaces
* Linear transformations
* Basis, linear independence, orthogonality
* Eigenvalues and eigenvectors
* Inner product spaces
* Diagonalization of matrices
* Quadratic forms
* Applications
1. **All courses at Florida SouthWestern State College contribute to the general education program by meeting one or more of the following general education competencies:**

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

**A.**  **General Education Competencies and Course Outcomes**

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student’s general education along with the general education competency it supports.

 General Education Competency: **Evaluate**

 Course Outcomes or Objectives Supporting the General Education Competency Selected:

Determine and apply appropriate mathematical and computational methods, models, principles and algorithms in order to solve mathematical problems related to the selection of topics listed in the “General Course Information: Topic Outline” of this Syllabus, interpret and represent results.

**B.** **Other Course Objectives/Standards**

At the conclusion of this course, students will be able to demonstrate the following competencies:

* Use the structure of matrices and determinants to set up and solve application problems.
* Perform mathematical operations using matrices and determinants with and without calculators.
* Form canonical factorizations of matrices.
* Complete Gauss-Jordan elimination to produce solutions to systems of equations.
* Assess when a set and two operations define a vector space.
* Complete linear transformations.
* Compare and measure the basis, independence and orthogonality of a matrix.
* Compute and analyze eigenvalues and eigenvectors of matrices.
* Analyze properties for similar matrices.
* Complete diagonalization of matrices.
* Integrate Markov chains into problems involving matrices.
1. **DISTRICT-WIDE POLICIES:**

**Programs for Students with Disabilities**

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <http://www.fsw.edu/adaptiveservices>.

**REPORTING TITLE IX VIOLATIONS**

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct.  Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at equity@fsw.edu.  Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online.  Additional information and resources can be found on the College’s website at <http://www.fsw.edu/sexualassault>.

1. **REQUIREMENTS FOR THE STUDENTS:**

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

1. **ATTENDANCE POLICY:**

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog, and defers to the professor.)

1. **GRADING POLICY:**

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

90 - 100 = A

80 - 89 = B

70 - 79 = C

60 - 69 = D

Below 60 = F

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

1. **REQUIRED COURSE MATERIALS:**

(In correct bibliographic format.)

1. **RESERVED MATERIALS FOR THE COURSE:**

Other special learning resources.

1. **CLASS SCHEDULE:**

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

1. **ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:**

(Which would be useful to the students in the class.)