

Instructor: Dr. François Ziegler
Office: MP 3003
Office Hours: M 2:00–3:00; TR 11:30–12:30; W 9:00–10:00;
or by appointment

Contact Info:

Course Home Page: <http://math.georgiasouthern.edu/~fziegler/2331/>
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Credit Hours: 3
Location and Time: Math/Physics 1305, TR 3:30–4:45
Prerequisite Courses: A grade of C or better in Math 2242 (Calculus II).

Textbook: *Elementary Linear Algebra* (5th edition), by Larson/Edwards/Falvo. Houghton Mifflin, 2004, ISBN 0-618-33567-6.

Calculator: Graphing calculators beyond the TI-84+ are not allowed on tests, nor is sharing of calculators.

Course Description: Matrices, solutions of linear systems, vector spaces and subspaces, orthogonality, determinants, eigenvalues and eigenvectors, linear transformations, diagonalization, and applications.

Course Objectives: Students will demonstrate their understanding of the basic concepts of linear algebra, including elementary matrices, solutions of linear systems, vector spaces and subspaces, orthogonality, determinants, eigenvalues and eigenvectors, linear transformations, and diagonalization.

For general education objectives, refer to http://academics.georgiasouthern.edu/provost/instruction/gened_outcomes.html.

Assessment of course objectives: Student achievement will be measured through the use of: quizzes on past homework; three semester tests; and a comprehensive final exam. Tentative weights:

15% quizzes, 60% tests, 25% final.

Grading Policy: Grades will be assigned based on the percentage of points earned from the available measurement of student achievement of course objectives. The course grading scale will be

90-100% : A, 80-89% : B, 70-79% : C, 60-69% : D, < 60% : F.

Make-up Policy: No make-up exams will be given. When a student misses an exam the score from the final exam will be substituted for the missing exam score.

Attendance Policy: Students are expected to attend each class meeting in totality, but attendance will not be taken. A student who misses class is responsible to find out what was discussed and learn the material that was covered on the missed period: the instructor is **not** responsible for re-teaching missed material.

Academic Integrity: Any student who exhibits academic dishonesty in any form will receive a failing grade (F) for the entire course and will be reported to the University Judicial Officer. For more information, see the Student Code of Conduct at <http://students.georgiasouthern.edu/judicial/>.

Civility Statement: See the Student Code of Conduct at the URL above. The use of cell phones, pagers, media players or laptops in the classroom is prohibited unless required by the instructor.

Disability Policy: see <http://students.georgiasouthern.edu/disability/>.

Additional Help: The Academic Success Center offers free peer tutoring during the week. Contact the tutorial centers for exact hours at (912) 478-5371 or visit their website at <http://academics.georgiasouthern.edu/success/>.

Important Dates:

- January 19: Martin Luther King Jr. Holiday.
- March 9: Last day to drop without academic penalty.
- March 16–20: Spring break.
- May 4: Last day of classes.
- May 5 (Tuesday): **Final Exam, 3:00–5:00.**

Tentative Schedule for Math 2331—Elementary Linear Algebra:

Week 1 (Jan 12)	Section 1.1	Systems of Linear Equations
	Section 1.2	Gaussian Elimination and Gauss-Jordan Elimination
	Section 1.3	Applications of Systems of Linear Equations
Week 2 (Jan 19)	January 19	Martin Luther King Jr. Holiday
	Section 4.1	Vectors in \mathbf{R}^n
	Section 4.2	Abstract Vector Spaces
Week 3 (Jan 26)	Section 2.1	Operations with Matrices
	Section 2.2	Properties of Matrix Operations
	Section 2.3	The Inverse of a Matrix
Week 4 (Feb 2)	Section 2.4	Elementary Matrices
		Review
Week 5 (Feb 9)		Test # 1
	Section 3.1	The Determinant of a Matrix
Week 6 (Feb 16)	Section 3.2	Evaluation of a Determinant Using Elementary Operations
	Section 3.3	Properties of Determinants
Week 7 (Feb 23)	Section 4.3	Subspaces of \mathbf{R}^n
	Section 4.4	Spanning Sets and Linear Independence
Week 8 (Mar 2)	Section 4.5	Basis and Dimension
	Section 4.6	Rank of a Matrix and Systems of Linear Equations
Week 9 (Mar 9)	Section 4.7	Coordinates and Change of Basis
		Review
Week 10 (Mar 16)	March 16–20	Spring break
Week 11 (Mar 23)		Test # 2
	Section 6.1	Introduction to Linear Transformations
Week 12 (Mar 30)	Section 6.2	The Kernel and Range of a Linear Transformation
	Section 6.3	Matrices for Linear Transformations
Week 13 (Apr 6)	Section 6.4	Transition Matrices and Similarity
	Section 7.1	Eigenvalues and Eigenvectors
Week 14 (Apr 13)	Section 7.2	Diagonalization
		Review
Week 15 (Apr 20)		Test # 3
	Section 5.1	Length and Dot Product in \mathbf{R}^n
	Section 5.2	Abstract Inner Product Spaces
Week 16 (Apr 27)	Section 7.3	Symmetric Matrices and Orthogonal Diagonalization
		Review
Week 17 (May 4)	May 5	Final Exam, 3:00–5:00

Additional topics from Sections 3.5 (Applications of Determinants) and 5.3 (Gram-Schmidt Process) may be covered as time permits.