



Linear Algebra MATH 2318

Course Syllabus: Fall 2016

"Northeast Texas Community College exists to provide responsible, exemplary learning opportunities."

Dr. Mark R. Bouwens, Professor of Physics

B.S. Physics (Computer Science minor), Florida Institute of Technology
Health Physics - 14 weeks training - U.S. Nuclear Regulatory Commission
M.S. Applied Mathematics - Statistics, Florida Atlantic University
M.S. Physics, Florida Atlantic University
Ph.D. Physics, Florida Atlantic University

Office: Math Science Building, Room N

Phone: 903-434-8297

Email: mbouwens@ntcc.edu

	Monday	Tuesday	Wednesday	Thursday	Friday
Office Hours	7:30am-8am 12:30pm-1:30pm 4:30pm-5:30pm	7:30am-9:30am 12:30pm-1pm	7:30am-8am 12:30pm-1:30pm 4:30pm-5:30pm	7:30am-9:30am 12:30pm-1pm	

The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Catalog Course Description: 3 credit hours.

Lecture: Three hours of lecture each week.

Prerequisite: MATH 2414

Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; matrices; determinants; linear transformations; quadratic forms; eigenvalues and eigenvector; and applications in science and engineering.

Required Textbook: Lay. *Linear Algebra*, 5th Edition. Pearson, 2016.

Publisher: Pearson

ISBN Number: 978-0-321-98261-2

Core Curriculum Purpose and Objectives:

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of mathematics focus on quantitative literacy in logic, patterns, and relationships. In addition, these courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

Course Level Student Learning Outcomes:

Upon successful completion of this course, students will be able to

- 2318.1 identify a system of linear equations.
- 2318.2 solve a system of linear equations.
- 2318.3 find a determinant.
- 2318.4 find eigenvalues.
- 2318.5 solve problems with quadratic forms.

College Student Learning Outcomes:Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

EQS.3 Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

Lectures & Discussions:

Chapter 1: Linear Equations in Linear Algebra

Chapter 2: Matrix Algebra

Chapter 3: Determinants

Chapter 4: Vector Spaces

Chapter 5: Eigenvalues and Eigenvectors

Chapter 6: Orthogonality and Least Squares (optional)

Chapter 7: Symmetric Matrices and Quadratic Forms

Evaluation/Grading Policy:

Homework will represent 10% of your grade. There will be 4 (or optionally 5) Tests and a Final Exam. The average of the tests will represent 90% of your grade. The letter grading system is: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Tests/Exams:

TEST 1: Chapters TBD

TEST 2: Chapters TBD

TEST 3: Chapters TBD

TEST 4: Chapters TBD

TEST 5: Chapters TBD (optional)

FINAL EXAM: Chapters 1-7

Assignments:

Homework will be assigned from Chapters 1-7.

Course Restrictions:

You may not use electronic devices (with the exception of a calculator) in class or lab unless specifically provided permission from the instructor. Electronic devices include, but are not limited to, computers, tablets, phones, smartphones, and MP3 players.

NTCC Academic Honesty Statement:

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

Academic Ethics

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to arrange an appointment with a College counselor to obtain a Request for Accommodations form. For more information, please refer to the NTCC Catalog or Student Handbook

Family Educational Rights And Privacy Act (Ferpa):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.