Nanchang University
MATH231 Linear Algebra II

Credit: 4

Contact Hours

This course is composed of 24 lecture sessions, 3 tutorial sessions and 9 office hours. Each lecture session takes 2 contact hours in length; each tutorial session takes 3 contact hours in length; There will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours)at the end of this term. This course has 72 contact hours in total.

Course Description

This is the secondary course in linear algebra, providing more abstract approach to the study of linear space and linear transformation. Topics to be covered include vector spaces, orthogonality, linear transformations, inner product spaces, additional topics and applications.

Required Textbook

Textbook: *Linear Algebra with Applications*
Author: Jeffrey Holt
ISBN: 1464193347

Grading

• Participation   10%
• Quizzes   30%
• Midterm   30%
• Final Exam   30%

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	

Course Schedule

The course has 24 class sessions in total. All sessions are 2 contact hours in length. At the end of this term, there will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours).

Note: the course outline and required readings are subject to change.

Class 1:Introduction to Linear Algebra II

Class 2:Vector Spaces and Subspaces

Class 3:Span and Linear Independence

Class 4:Basis and Dimension

Class 5:Dot Products and Orthogonal Sets

Class 6:Projection and the Gram-Schmidt Process

Class 7:Diagonalizing Symmetric Matrices and QR Factorization

Class 8:The Singular Value Decomposition

Class 9:Least Squares Regression

Class 10:Least Squares Regression (Cont.)

Class 11:Mid-term Exam

Class 12:Definition and Properties

Class 13:Isomorphisms

Class 14:Isomorphisms (Cont.)

Class 15:The Matrix of a Linear Transformation

Class 16:Similarity

Class 17:Inner Products

Class 18:The Gram-Schmidt Process Revisited

Class 19:Applications of Inner Products

Class 20:Quadratic Forms

Class 21:Positive Definite Matrices

Class 22:Constrained Optimization

Class 23:Complex Vector Spaces

Class 24:Hermitian Matrices

Attending Policy

Regular and prompt attendance is required. Under ordinary circumstances, you may miss two times without penalty. Each absence over this number will lower your course grade by a third of a letter and missing more than five classes may lead to a failing grade in the course. Arriving late and/or leaving before the end of the class period are equivalent to absences.

Policy on "Late Withdrawals"

In accordance with university policy, appeals for late withdrawal will be approved ONLY in case

of medical emergency and similar crises.

Academic Honesty

Nanchang University expects all students to do their own work. Instructors will fail assignments that show evidence of plagiarism or other forms of cheating, and will also report the student's name to the University administration. A student reported to the University for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

General Expectations:

Students are expected to:
— Attend all classes and be responsible for all materials covered in class and otherwise assigned;
— Complete the day's required reading and assignments before class;
— Review the previous day's notes before class and make notes about questions you have about the previous class or the day's reading;
— Participate in class discussions and complete required written work on time;
— Refrain from texting, phoning or engaging in computer activities unrelated to class during the class period;
— While class participation is welcome, even required, you are expected to refrain from private conversations during the class period.

Special Needs or Assistance

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.