



Nanchang University MATH 28: Introduction to Real Analysis

Credit: 4

Contact Hours

This course is composed of 24 lecture sessions, 3 tutorial sessions and 9 office contact 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 course covers real numbers, convergence, values and orders, sequences, limits, continuity, series, differentiation, compactness, connectedness, the Riemann integral and etc.

Textbook Information

Introduction to Real Analysis, Alan Parks, Createspace Independent Pub; 2, ISBN: 1495227863
Analysis with an Introduction to Proof, 5th Edition, 1 January, 2013, Steven R. Lay. ISBN: 032174747X.

Grading

- Participation 10%
- Assignments and exercises 20%
- Quizzes 20%
- Midterm 20%
- 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:

Real Numbers as field axioms

Class 2:

Order Structure

Class 3:

Bounded sets, infimum and supremum

Class 4:

Natural numbers, the absolute value rational and irrational numbers

Class 5:

Sequences and boundedness

Class 6:

Convergence tests, absolute convergence

Class 7:

Properties of limits

Class 8:

Monotonic convergence criterion

Class 9:

Subsequences, Bolzano-Weierstrass Theorem

Class 10:

Cauchy sequences, Lim sup **and** lim inf

Class 11:

Series, alternating series, boundedness criterion

Class 12:

Cauchy convergence criterion for series

Class 13:

Differentiation



Class 14:

Norms of Topology of \mathbb{R}^d

Class 15:

Convergence in \mathbb{R}^d

Class 16:

Open and closed sets in \mathbb{R}^d

Class 17:

Compactness, the Heine-Borel Theorem

Class 18:

Limits of function

Class 19:

Continuity, Properties of continuous functions

Class 20:

Inverses and uniform of continuous functions

Class 21:

Limits, Continuity and Arithmetic

Class 22:

Infinite limits and limits at infinity

Class 23:

Derivatives

Class 24:

Integral

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.