Course Description Form

1. Course Name: Real Analysis I

2. Course Code: MATH 310

3. Semester / Year: First/ 2023-2024

4. Description Preparation Date: 15/10/2023

5. Available Attendance Forms: physical attendance

6. Number of Credit Hours (Total) / Number of Units (Total): 60/4

7. Course administrator's name (mention all, if more than one name)

Name: Dr. Aamena Rasim Mohammed
Email: aamen.raimmohammed@nahrainuniv.edu.iq

8. Course Objectives

Course Objectives	- Understand the real number system. - Understand concepts of convergence and divergence for sequences, subsequences and Cauchy sequences. - Understand metric spaces, complete metric spaces and compact metric spaces.

9. Teaching and Learning Strategies

Strategy	• Giving Lectures supported by exercises and activities in the classroom • Daily and Weekly Assessments. • Giving homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	(3)+(1) Discussion	Well-ordered complete sets	Real Numbers	Lectures	General questi discussion assignments
Second	(3)+(1) Discussion	Absolute value	Real Numbers Sequences	Lectures Lectures	General questi discussion assignments

Third	(3)+(1) Discussion	Definition of sequence			General questi discussion assignments
Fourth	(3)+(1) Discussion	convergent divergent sequences	Sequences	Lectures	General questi discussion assignments
Fifth	(3)+(1) Discussion	Monotonic sequence	Sequences	Lectures	General questi discussion assignments
Sixth	(3)+(1) Discussion	Subsequences			General questi discussion assignments
Seventh	(3)+(1) Discussion		Sequences	Lectures	General questi discussion assignments
Eighth	(3)+(1) Discussion	Cauchy sequences	Metric Spaces	Lectures	General questi discussion assignments
Ninth	(3)+(1) Discussion	Definition of me spaces with example	Metric Spaces	Lectures	General questi discussion assignments
Tenth	(3)+(1) Discussion	Open and closed sets	Metric Spaces	Lectures	General questi discussion assignments
Eleventh	(3)+(1) Discussion	Limit points	Metric Spaces	Lectures	General questi discussion assignments
Twelfth	(3)+(1) Discussion	Convergent seque Cauchy sequences	Metric Spaces	Lectures	General questi discussion assignments
Thirteenth	(3)+(1) Discussion	Complete metric spa	Metric Spaces	Lectures	General questi discussion assignments
Fourteenth	(3)+(1) Discussion	Contraction Mappin	Metric Spaces	Lectures	General questi discussion assignments
Fifteenth	(3)+(1) discussion	Compact sets	Metric Spaces	Lectures	General questi discussion assignments
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11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

Homework 5%
Daily preparation 5%
Monthly Assessments 30%
Final Test 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Mathematical Analysis, Adil Naoum, Baghdad University-Iraq.
Main references (sources)	Introduction to Mathematica Analysis, William F. Tren USA 2015

Recommended books and references (scientific journals, reports…)	Principle of Mathematical Analysis, Wa Rudin, 2000
Electronic References, Websites	https://www.britannica.com/science/analysis-mathematics