



Academic Program and Course Descriptions

Department of Mathematics

Academic Year: 2026-2025



College Academic Program Description Form For The Academic Year 2025-2026

University: Diyala

College/Institute: Basic Education

Scientific Department: Mathematics

Final Degree Name/Bachelor of Education / Mathematics

Academic system /semester

Date of Filling out the File: 1/10/2025

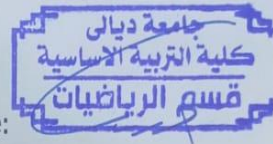
Signature:

Name of the Department Head

Prof. Dr. Mohammed Ali Murad

Date: 26/4/2026

Signature:



Scientific Associate Name:

Asst. Prof. Dr. Haider Abdel-Baqi

Date: 26/4/2026

Check the file before:

Name of the Director of the Division of Quality Assurance and
University Performance:

Instructor. Dr. Wedyan Hameed Hameed

Date: 26/4/2026

Signature:

Approval of the Dean of the College:

Asst.Prof.Dr.Ayman Abed Aoun Nazzal

Fourth Year – Seventh Semester Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
Fourth \ Seventh	MAB03LP411	Linear Programming	2	1	3	2.5
	MAB03T412	Topology	2	2	4	3
	MAB03CA413	Complex Analysis	2	2	4	3
	Coll 4215	Educational Administration and Supervision	2	-	2	2
	SMDFO701	Specialized Teaching Methods	3	-	3	3
	ENVFI2	Environment and Health	2	-	2	2
	PROFO7	Professional Ethics	2	-	2	2
	MAB03TP421	Practicum (Observation)	-	4	4	2
	PRFOLA1	Arabic Literature	2	-	2	2
	Total		17	9	25	21.5

Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
Fourth \ Eighth	MAB03GR415	Graduation Research Project	2	-	2	2
	MAB03TP421	Practicum (Teaching Practice/Application)	12	-	12	12
Total			14	-	14	14

Course Description Form

Field	Details
Course Name	Professional Ethics
Course Code	MAB03PE425
Semester / Year	Seventh / Fourth Year
Date of Description Preparation	1/10/2025
Available Attendance Modes	Mandatory (In-Person)
Total Study Hours	30 hours
Number of Units	2
Course Coordinator	Asst. Prof. Dr. Laith Abdulstar Iyada
Email	basichist24te@uodiyala.edu.iq

Course Objectives

By the end of the academic year, the student should be able to:

- Understand the concept of professional teaching ethics.
 - Distinguish between ethics and moral character.
 - Understand the importance of ethics and methods of acquiring them.
 - Understand professional ethics in the university and society.
 - Understand professional ethics in the academic community.
 - Understand the basic concepts of professional ethics.
 - Understand the processes of moral formation.
 - Understand ethics in assessment and examinations.
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Teaching and Learning Strategies

Cooperative Learning Strategy: Discussion based on identifying the basic concepts of the topic and then beginning instruction. This method relies on dividing students into small heterogeneous groups of (4–6) members per group. Students in each group cooperate in explaining and understanding the topic, with the professor acting as a guide and mentor.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	2	-	Meeting with students and introduction to course syllabus	Lecture	-
2	2	- Define the meaning of ethics and moral character. - Distinguish between ethics and moral	Linguistic and Terminological Definition of Ethics	Lecture	Preparation Participation

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		character. - Explain the status of ethics in Islam.			
3	2	- Explain the importance of ethics. - Explain the emergence and development of the science of ethics. - Explain the role of ethics in regulating social behavior.	Importance of Ethics – Emergence and Development of the Science of Ethics	Discussion	Preparation Participation
4	2	- Understand the basic pillars of moral character. - Explain the stages of moral formation. - Distinguish between the pillars of good moral character. - Explain the importance of the pillars of moral character in forming ethical behavior.	Processes of Moral Formation – Pillars of Good Moral Character	Questioning	Daily Written Exam

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
5	2	- Explain the basic methods of acquiring ethics. - Explain the role of family upbringing in moral formation. - Explain the importance of learning and education in acquiring good ethics. - Explain the role of good companionship in acquiring ethics.	Methods of Acquiring Good Ethics	Micro-Teaching	Preparation Participation
6	2	- Understand the methods of learning ethics (family, school, society, religion and spiritual guidance). - Understand the role of social and educational institutions in moral education.	Methods of Teaching Ethics through Socialization – Role of Social and Educational Institutions in Moral Education	Discussion	Preparation Participation
7	2	First Periodic Exam – Solving the			

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		exam and discussing errors with students			
8	2	- Understand the basic theories of ethics acquisition and their major theorists: - Behavioral Theory - Psychoanalytic Theory - Cognitive Theory	Theories of Ethics Acquisition	Discussion	Preparation Participation
9	2	- Understand the most important ethical principles and standards that should be observed in the context of academic assessment and examinations .	Ethics in Assessment and Examinations	Cooperative Learning	Preparation Participation
10	2	- Understand professional ethics toward society. - Understand the challenges in applying university	Professional Ethics in the University and Society	Discussion	Preparation Participation

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		professional ethics.			
11	2	- Understand the most important basic concepts of professional ethics: - Integrity – Justice – Responsibility – Respect – Transparency	Basic Concepts of Professional Ethics	Micro-Teaching	Preparation Participation
12	2	- Understand the teacher's duties in promoting education and upbringing: - Educational duties – Ethical and professional duties – Pedagogical duties – Administrative duties	Teacher's Professional Duties	Discussion	Daily Written Exam
13	2	- Understand the main reasons for interest in professional ethics: - Building trust – Individual and institutional reputation –	Why Should We Care About Professional Ethics?	Discussion	Preparation Participation

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		Increasing productivity and quality – Avoiding legal problems – Promoting a positive environment			
14	2	- Understand the main sources of professional ethics: - Laws and legislation – Cultural and societal values – Religious teachings – Philosophy and personal experience	Sources of Professional Ethics	Lecture	Preparation Participation
15	2	Second Periodic Exam – Solving the exam and discussing errors with students			

Course Assessment

Learning and Teaching Resources

Category	Details
Required Prescribed Books	None
Main References (Sources)	Professional Work Ethics, Badawi Mohammed Zaki, Cairo, 2010. Professional Ethics, Al-Hussein Mohammed, 2012.
Recommended Supporting Books and References (Scientific Journals, Reports, etc.)	Al-Fath Journal, Al-Ustadh Journal.
Electronic References, Internet Sites, etc.	Al-Maktaba Al-Shamila.

Course Description Form

Field	Details
Course Name	Practicum (Observation)
Course Code	MAB03PE327
Semester / Year	Seventh / Fourth Year
Date of Description Preparation	1/10/2025
Available Attendance Modes	Mandatory (In-Person)
Total Study Hours	60 hours
Number of Units	2
Course Coordinator	Asst. Prof. Dr. Iman Kazim Ahmed
Email	basicmath2te@uodiyala.edu.iq
	Asst. Lect. Sara Natiq Adnan
Email	basicmath8te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Concept of observation.
2. Importance of observation.
3. Duties of the observing student.
4. Preparation of the lesson plan.
5. Definition of field visits.
6. School visit in basic education stage.
7. School visit in basic education stage.
8. School visit in basic education stage.
9. School visit in basic education stage.
10. School visit in basic education stage.
11. School visit in basic education stage.
12. School visit in basic education stage.
13. School visit in basic education stage.
14. Discussion of field visit observations.
15. Delivery of individual lesson.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Deep understanding of the concept of educational observation.
A2	Comprehension of the objectives of educational observation in the university context (developing analytical and critical thinking of classroom performance – linking theoretical experience with practical application in classrooms – enhancing the ability to evaluate teaching practices objectively).
A3	Individual and group observation – direct and indirect observation.
A4	Analysis of teaching strategies.
A5	Understanding the use of teaching aids.
A6	Study of classroom management patterns.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

Code	Skill
B1	Preparation and goal setting.
B2	Documentation and precise observation.
B3	Knowledge of what is expected of an effective teacher in the classroom.
B4	How to provide constructive and professional feedback.
B5	Teacher and student privacy, data confidentiality, and professional evaluation.
B6	Analysis and discussion of results for use in improving future performance.

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.
 2. Informing students about the topic of the upcoming lecture for preparation purposes.
 3. Requesting students to submit papers on one or more of the topics under study.
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Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
 2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.
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C. Affective and Value Objectives

The student should be able to:

Code	Objective
C1	Understand teaching objectives.
C2	Understand teaching methods.
C3	Understand classroom interaction.
C4	Understand student evaluation.

Teaching and Learning Methods (Affective)

The direct instruction method is typically used, where skills are taught directly and explicitly, reinforced with examples from mathematics for basic education levels.

Assessment Methods (Affective)

These are included within the course assessment processes conducted during and at the end of the semester, such as various tests, participation in class and extracurricular activities.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Employ acquired skills in teaching mathematical knowledge to basic education students.
D2	Select examples from the basic education mathematics curriculum, each with skills addressed in the course.
D3	Evaluate the extent to which basic education students acquire application skills.

Code Skill

D4 Construct tests specific to teaching areas for basic education students.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	4	Introduction to educational observation	Definition of the concept, importance, and roles	Lecture and Group Discussion	Formative Assessment
2	4	Types of educational observation	Distinguishing between direct and indirect observation – individual – group	Analysis of Recorded Situations	Formative Assessment
3	4	Objectives of observation in teacher preparation programs	Analysis of the purpose of observation: development – evaluation – training	Discussion of Educational Cases	Formative Assessment
4	4	Educational observation tools	Observation forms, recording, video	Designing an Observation Form	Formative Assessment
5	4	Elements of the educational situation	Analysis of classroom behavior, teaching strategies, classroom management	Observing a Lesson and Analyzing Its Elements	Formative Assessment
6	4	Steps of implementation	Before, during, and after	Classroom Simulation	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		ng observation	observation – organized steps	Application	
7	4	Observation ethics	Privacy, honesty, and respect	Discussion of Real Cases	Formative Assessment
8	4	Providing feedback	Constructive observation skills	Role-playing and Feedback Model	Formative Assessment
9	4	Field applications	Practicing classroom observation inside the classroom	Conducting Visits and Observation Reports	Formative Assessment
10	4	Field applications	Practicing classroom observation inside the classroom	Conducting Visits and Observation Reports	Formative Assessment
11	4	Field applications	Practicing classroom observation inside the classroom	Conducting Visits and Observation Reports	Formative Assessment
12	4	Analysis of classroom observations	Extracting results and recommendations from observations	Presentation of Observations	Formative Assessment
13	4	Review and integration	Summarizing concepts and linking them to field experience	Group Interactive Activity	Formative Assessment
14	4	Final Exam	Measuring	Project	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
			theoretical and applied understanding	Submission and Exam	Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	None
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing periodicals and sources related to the course.
b. Electronic References, Internet Sites, etc.	Utilizing the Internet as a known source of information.

Course Development Plan

1. The course is developed according to requirements that emerge from curriculum development in basic education stages.
2. The course is developed according to requirements that emerge from curriculum development in the global system.

Course Description Form

Field	Details
Course Name	Specialized Teaching Methods

Field	Details
Course Code	Math 4330
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	45 hours
Number of Units	2
Date of Description Preparation	1/10/2025
Course Coordinator	Sara Natiq Adnan
Email	basicmath8te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Concept of teaching methods, definition with illustrative examples.
 2. Understanding the concept of number order and ordinal numbers with illustrative examples.
 3. How to teach numbers from 1–5.
 4. Teaching numbers from 6–10 and teaching the concept of zero with illustrative examples.
 5. Teaching the concept of addition of numbers with basic addition facts and their stages through examples.
 6. Teaching the addition algorithm with its stages through examples.
 7. Teaching the concept of subtraction of numbers with basic subtraction facts and their stages through examples.
 8. Teaching the subtraction algorithm with its stages through examples.
 9. Teaching the concept of multiplication and division of numbers with basic facts and their stages through examples.
 10. Teaching the multiplication and division algorithms with their stages through examples.
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Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
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A1	The student should understand the meaning of teaching methods.
A2	The student should know the concept of addition, its facts, and algorithm.
A3	The student should know the concept of subtraction, its facts, and algorithm.
A4	The student should know the concept of multiplication, its facts, and algorithm.
A5	The student should know the concept of division, its facts, and algorithm.
A6	The student should know the concepts of fractions.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

Code	Skill
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B1	Addition of numbers.
B2	Subtraction of numbers.
B3	Multiplication of numbers.
B4	Division of numbers.
B5	Concept of numbers (0–10).
B6	Concept of fractions (both types).

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.

2. Informing students about the topic of the upcoming lecture for preparation purposes.
 3. Requesting students to submit papers on one or more of the topics under study.
-

Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
 2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.
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C. Affective and Value Objectives

The student should be able to:

Code	Objective
C1	Define the importance of arithmetic operations in life and connect them to reality.
C2	Form positive attitudes toward the subject.
C3	Develop a spirit of cooperation among students during homework solving.
C4	Appreciate the aesthetic importance of the subject.

Teaching and Learning Methods (Affective)

The direct instruction method is typically used, where skills are taught directly and explicitly, reinforced with examples from mathematics for basic education levels.

Assessment Methods (Affective)

These are included within the course assessment processes conducted during and at the end of the semester, such as various tests, participation in class and extracurricular activities.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Employ acquired skills in teaching mathematical knowledge to basic education students.
D2	Select examples from the basic education mathematics curriculum, each with skills addressed in the course.
D3	Evaluate the extent to which basic education students acquire application skills.
D4	Construct tests specific to teaching areas for basic education students.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	3	Definition of numbers (0–10) with illustrative examples	Concept of Numbers	Discussion and Questioning	Formative Assessment
2	3	Addition of numbers with their facts with examples for each type	Basic Addition Facts	Discussion and Questioning	Formative Assessment
3	3	Subtraction	Basic	Discussion	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		of numbers with their facts with examples for each type	Subtraction Facts	and Questioning	Assessment
4	3	Multiplication of numbers with their facts with examples for each type	Basic Multiplication Facts	Discussion and Questioning	Formative Assessment
5	3	Division of numbers with their facts with examples for each type	Basic Division Facts	Discussion and Questioning	Formative Assessment
6	3	Monthly Exam	Monthly Exam	-	Formative Assessment
7	3	Addition algorithm and its stages with examples	Addition Algorithm	Discussion and Questioning	Formative Assessment
8	3	Subtraction algorithm and its stages with examples	Subtraction Algorithm	Discussion and Questioning	Formative Assessment
9	3	Multiplication algorithm and its stages with examples	Multiplication Algorithm	Discussion and Questioning	Formative Assessment
10	3	Division algorithm and its stages	Division Algorithm	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		with examples		g	
11	3	Monthly Exam	Monthly Exam	-	Formative Assessment
12	3	Fractions, their types, and how to teach them with examples	Teaching Fractions	Discussion and Questioning	Formative Assessment
13	3	Operations on fractions	Operations on Fractions	Discussion and Questioning	Formative Assessment
14	3	Review		Discussion and Questioning	Formative Assessment
15	3	Final Exam	Final Exam	Discussion and Questioning	Formative Assessment

Infrastructure

Category

Details

1. Required Prescribed Books

None

2. Main References (Sources)

- Teaching Methods of Mathematics by Farid Kamil Abu Zeina. - Teaching Methods of Mathematics by Abbas Naji Al-Mashhadani.

a. Recommended Books and References (Scientific

Utilizing periodicals and sources related to the course.

Category	Details
Journals, Reports, etc.)	
b. Electronic References, Internet Sites, etc.	Utilizing the Internet as a known source of information.

Course Development Plan

1. The course is developed according to requirements that emerge from curriculum development in basic education stages.
 2. The course is developed according to requirements that emerge from curriculum development in the global system.
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Course Description Form

Field	Details
Course Name	Complex Analysis
Course Code	Math 4329
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	60 hours
Number of Units	3
Date of Description Preparation	1/10/2025
Course Coordinator	Shaima Adel
Email	basicmathte3@uodiyala.edu.iq

Course Objectives

By the end of the academic year, the student should be able to:

- 1- Learn complex numbers.
 - 2- Learn complex numbers.
 - 3- Learn complex numbers as a metric space.
 - 4- Learn analytic functions.
 - 5- Learn complex differentiation.
 - 6- Learn Cauchy-Riemann equations and some of their applications.
-

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of complex numbers.
A3	Enable students to acquire knowledge and understanding of complex numbers as a field.
A4	Enable students to acquire knowledge and understanding of complex numbers as a metric space.
A5	Enable students to acquire knowledge and understanding of analytic functions.
A6	Enable students to acquire knowledge and understanding of applications of Cauchy-Riemann equations.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in complex differentiation.

Teaching and Learning Methods

- 1- Clarify and explain the course material.
 - 2- Model presentation method.
 - 3- Lecture method.
 - 4- Self-learning method.
-

Assessment Methods

- 1- Daily tests with specific questions.
 - 2- Assign grades for homework and class participation.
 - 3- Assign students to complete research and reports on the course material.
 - 4- Monthly exams with objective and essay questions and applied problem-solving.
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C. Affective and Value Objectives

Code	Objective
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C1	Appreciate the importance of studying the subject and its life applications.
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Teaching and Learning Methods (Affective)

- 1- Explanation and clarification.
 - 2- Model presentation method.
 - 3- Self-learning method.
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Assessment Methods (Affective)

- 1- Theoretical tests.
 - 2- Reports and studies.
-

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Skills in using references and terminology.
D2	Skills in collecting and analyzing data on the topic.
D3	Skills in preparing specific concepts on the topic.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	4	Learn complex numbers	Complex Numbers	Presentation Method	Formative Assessment
2	4	Learn complex numbers	Complex Numbers	Explanation and Clarification	Formative Assessment
3	4	Learn complex numbers as a field	Complex Numbers as a Field	Explanation and Clarification	Formative Assessment
4	4	Learn complex numbers as a field	Complex Numbers as a Field	Explanation and Clarification	Formative Assessment
5	4	Learn complex numbers as a metric space	Complex Numbers as a Metric Space	Explanation and Clarification	Formative Assessment
6	4	Learn complex numbers as a	Complex Numbers as a Metric Space	Explanation and Clarification	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		metric space		n	
7	4	First Periodic Exam – Solving the exam and discussing errors with students			
8	4	Learn analytic functions	Analytic Functions	Explanation and Clarification	Formative Assessment
9	4	Learn analytic functions	Analytic Functions	Explanation and Clarification	Formative Assessment
10	4	Learn complex differentiation	Complex Differentiation	Explanation and Clarification	Formative Assessment
11	4	Learn complex differentiation	Complex Differentiation	Explanation and Clarification	Formative Assessment
12	4	Learn Cauchy-Riemann equations and some applications	Cauchy-Riemann Equations and Some Applications	Explanation and Clarification	Formative Assessment
13	4	Learn Cauchy-Riemann equations and some applications	Cauchy-Riemann Equations and Some Applications	Explanation and Clarification	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
14	4	Review		Explanation and Clarification	Formative Assessment
15	4	Second Periodic Exam – Solving the exam and discussing errors with students			

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Complex Variables and Applications by R. Churchill, translated by Yahya Sa'id.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	- Complex Functions and Applications by Yahya Sa'id, Dr. Samir Bashir Hadid. - Utilizing any sources related to the topic.
b. Electronic References, Internet Sites, etc.	Seriyamath.

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Field	Details
Course Name	Topology
Course Code	Math 4328
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	60 hours
Number of Units	3
Date of Description Preparation	1/10/2025
Course Coordinator	Prof. Dr. Mohammed Ali Murad
Email	basicmath3te@uodiyala.edu.iq
	Asst. Lect. Doaa Riyad
Email	basicmathte2@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Concept of real numbers, bounded sets, absolute value.
 2. Real numbers as a field – the completeness axiom, definition with illustrative examples.
 3. Topology of real numbers, definition with illustrative examples.
 4. Neighborhood of a point, union and intersection of open and closed sets with illustrative examples.
 5. Types of topology, real topology, discrete topology with illustrative examples and some related theorems.
 6. Complement of a topological space, metric space, and cover of sets.
 7. Sequences of real numbers.
 8. Cauchy sequences, algebra of sequences with some theorems.
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Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	The student should understand the meaning of topology.
A2	The student should know the types of topology.
A3	The student should know open and closed sets.
A4	The student should know the cover of sets.
A5	The student should understand the concept of real sequences.
A6	The student should know the convergence of sequences.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

Code	Skill
B1	Topology and its types.
B2	Open and closed sets.
B3	Cover of sets.
B4	Real sequences.
B5	Convergence of sequences.

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.

2. Informing students about the topic of the upcoming lecture for preparation purposes.
 3. Requesting students to submit papers on one or more of the topics under study.
-

Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
 2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.
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C. Affective and Value Objectives

The student should be able to:

Code	Objective
C1	Define topology and its types.
C2	Define open and closed sets.
C3	Define the cover of sets.
C4	Define real sequences.
C5	Define convergence of sequences.

Teaching and Learning Methods (Affective)

The direct instruction method is typically used, where skills are taught directly and explicitly, reinforced with examples from mathematics for basic education levels.

Assessment Methods (Affective)

These are included within the course assessment processes conducted during and at the end of the semester.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Employ acquired skills in teaching mathematical knowledge to basic education students.
D2	Select examples from the basic education mathematics curriculum, each with skills addressed in the course.
D3	Evaluate the extent to which basic education students acquire application skills.
D4	Construct tests specific to mathematical thinking areas for basic education students.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	4	Real numbers, bounded sets	Real Numbers, Bounded Sets	Discussion and Questioning	Formative Assessment
2	4	Absolute value, real numbers as a field – the completeness axiom	Absolute Value, Real Numbers as a Field – The Completeness Axiom	Discussion and Questioning	Formative Assessment
3	4	Topology of	Topology of	Discussion	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		real numbers	Real Numbers	and Questioning	Assessment
4	4	Union and intersection of open and closed sets, topological space	Union and Intersection of Open and Closed Sets, Topological Space	Discussion and Questioning	Formative Assessment
5	4	Proving some theorems related to the topics	Proving Some Theorems Related to the Topics	Discussion and Questioning	Formative Assessment
6	4	Monthly Exam	Monthly Exam	-	Formative Assessment
7	4	Neighborhood of a point	Neighborhood of a Point	Discussion and Questioning	Formative Assessment
8	4	Types of topology, real topology, discrete topology	Types of Topology, Real Topology, Discrete Topology	Discussion and Questioning	Formative Assessment
9	4	Complement of a topological space	Complement of a Topological Space	Discussion and Questioning	Formative Assessment
10	4	Metric space and cover of sets	Metric Space and Cover of Sets	Discussion and Questioning	Formative Assessment
11	4	Monthly Exam	Monthly Exam	-	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
12	4	Sequences of real numbers	Sequences of Real Numbers	Discussion and Questioning	Formative Assessment
13	4	Cauchy sequences	Cauchy Sequences	Discussion and Questioning	Formative Assessment
14	4	Algebra of sequences	Algebra of Sequences	Discussion and Questioning	Formative Assessment
15	3	Final Exam	Final Exam	-	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	- Introduction to Topology by Adel Ghassan Naoum, Dr. Basil Atta Al-Hashimi. - Principles of General Topology.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing periodicals and sources related to the course.
b. Electronic References, Internet Sites, etc.	Utilizing the Internet as a known source of information.

Course Development Plan

1. The course is developed according to requirements that emerge from curriculum development in basic education stages.
 2. The course is developed according to requirements that emerge from curriculum development in the global system.
-

Course Description Form

Field	Details
Course Name	Linear Programming
Course Code	Math 4327
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	45 hours
Number of Units	2.5
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Yasmin Masoud Abdul Hassan
Email	basicmath10te@uodiyala.edu.iq

Course Objectives

1. Definition of linear programming – Algorithms for solving linear programming (computationally, graphically).
 2. Definition of games and their types.
 3. Finding the value of games.
 4. Some special methods for finding the value of games.
-

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Define linear programming – algorithms for solving linear programming (computationally, graphically).
A2	Define games and their types.
A3	Find the value of games.
A4	Use some special methods for finding the value of games.

Teaching and Learning Methods

- Lecture method (presentation).
 - Dialogue and discussion method.
-

Assessment Methods

- Achievement exams (daily, monthly, semester).
-

C. Affective and Value Objectives

Code	Objective
C1	Understand the importance of random variables in daily life.
C2	Understand the beauty and consistency of probability topics.
C3	Understand the directions of the subject matter.
C4	Understand the aesthetic values of the subject matter.

Teaching and Learning Methods (Affective)

- Lecture method (presentation).
 - Dialogue and discussion method.
-

Assessment Methods (Affective)

- Achievement exams (daily, monthly, semester).
-

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Learner's ability to deal positively with the course material.
D2	Raise the scientific and practical level of the learner.
D3	Give the learner an opportunity to demonstrate their talent.
D4	Learner's ability to perform computational skills in dealing with the course material.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	3	Definition of linear programming – algorithms for solving linear programming (computationally, graphically)	Solving Linear Programs	Discussion and Questioning	Formative Assessment
2	3	Graphical	Methods of	Discussion	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		method, simplex method (slack and artificial variables)	Solving Linear Programming	Discussion and Questioning	Assessment
3	3	Transportation problems and their handling, finding the initial basic solution	Applications of Linear Programming	Discussion and Questioning	Formative Assessment
4	3	Northwest corner method, least cost method, Vogel's method	The Normal Curve	Discussion and Questioning	Formative Assessment
5	3	Life examples in presenting linear programming problems	Life Applications of Linear Programming	Discussion and Questioning	Formative Assessment
6	3	Monthly Exams (Essay + Objective)	Monthly Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment
7	3	Finding the initial and optimal solution	Finding the Initial and Optimal Solution	Discussion and Questioning	Formative Assessment
8	3	Concept of game theory, definition of games and their types	Game Theory	Discussion and Questioning	Formative Assessment
9	3	Concept of game value, examples for	Finding the Value of Games	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		clarification		ng	
10	3	Minimax method, concept and application steps	Some Special Methods for Finding the Value of Games	Discussion and Questioning	Formative Assessment
11	3	Monthly Exam (Essay + Objective)	Monthly Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment
12	3	Analytical method, concept and application steps	Some Special Methods for Finding the Value of Games	Discussion and Questioning	Formative Assessment
13	3	Graphical method, concept and application steps	Some Special Methods for Finding the Value of Games	Discussion and Questioning	Formative Assessment
14	3	Simplex method, concept and application steps	Some Special Methods for Finding the Value of Games	Discussion and Questioning	Formative Assessment
15	3	End of Semester Exam (Essay + Objective)	End of Semester Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	Operations Research / Abdul Dhiab Jaza'a, 1st Edition 1985, 2nd Edition 1988.
2. Main References (Sources)	1. Introduction to Operations Research / Fathi Hamdan, Rashid Mar'i. 2. Experimental Statistics / Dr. Lutfi Hindi (1971).
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Sources related to the course content.
b. Electronic References, Internet Sites, etc.	---

Course Development Plan

Expand the course syllabus in line with the cognitive development of the subject matter.

Course Description Form

Field	Details
Course Name	Educational Administration and Supervision
Course Code	Coll 4215
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	30 hours
Number of Units	2
Date of Description Preparation	1/10/2025

Field	Details
Course Coordinator	Asst. Prof. Dr. Ahmed Dawood Salman
Email	basicmath4te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Concept of administration and its development, educational administration, school administration.
 2. Understanding the most important theories of administration.
 3. Understanding the most important functions of administration.
 4. Concept of leadership, its development, and its most important theories.
 5. Understanding educational supervision and methods of educational supervision.
 6. Evaluation in educational supervision (evaluation of the principal, evaluation of the teacher, evaluation of students).
-

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	The student should know the concept of administration, educational administration, and school administration.
A2	The student should know the most important theories of administration, its functions, and its patterns.
A3	The student should know the concept of leadership, educational leadership, and its most important theories.
A4	The student should know educational supervision, its development, and its most important methods.
A5	The student should know educational evaluation and its importance (principal, teacher, students).

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

Code	Skill
B1	Educational administration.
B2	Educational leadership.
B3	Educational supervision.
B4	Educational evaluation.

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.
 2. Informing students about the topic of the upcoming lecture for preparation purposes.
 3. Requesting students to submit papers on one or more of the topics under study.
-

Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
 2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.
-

C. Affective and Value Objectives

The student should be able to:

Code	Objective
C1	Define the most important skills of a successful educational leader.
C2	Define the most important skills of a successful principal.
C3	Define the type of successful leadership and educational administration.
C4	Distinguish the best evaluation methods in educational supervision.

Teaching and Learning Methods (Affective)

The direct instruction method is typically used, where skills are taught directly and explicitly, reinforced with examples of administration for basic education levels.

Assessment Methods (Affective)

These are included within the course assessment processes conducted during and at the end of the semester.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Employ acquired skills in teaching the most important management skills to students.
D2	Select examples or models of administration and present their positives and negatives.
D3	Evaluate the extent to which students have acquired evaluation skills.

Code	Skill
D4	Construct tests to identify the most important skills acquired by students through the course.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	2	Concept of administration, educational administration, school administration with examples	Concept of Administration, Educational Administration, School Administration with Examples	Discussion and Questioning	Formative Assessment
2	2	Theories of educational administration	Theories of Educational Administration	Discussion and Questioning	Formative Assessment
3	2	Functions of educational administration	Functions of Educational Administration	Discussion and Questioning	Formative Assessment
4	2	Patterns of educational administration	Patterns of Educational Administration	Discussion and Questioning	Formative Assessment
5	2	Leadership – concept and development	Leadership – Concept and Development	Discussion and Questioning	Formative Assessment
6	2	Monthly Exam	Monthly Exam	-	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
7	2	Most important theories of leadership	Most Important Theories of Leadership	Discussion and Questioning	Formative Assessment
8	2	Some models of leadership behavior – concept and types	Some Models of Leadership Behavior – Concept and Types	Discussion and Questioning	Formative Assessment
9	2	Educational supervision and its development	Educational Supervision and Its Development	Discussion and Questioning	Formative Assessment
10	2	Types of educational supervision and methods of educational supervision	Types of Educational Supervision and Methods of Educational Supervision	Discussion and Questioning	Formative Assessment
11	2	Monthly Exam	Monthly Exam	-	Formative Assessment
12	2	Evaluation in educational supervision	Evaluation in Educational Supervision	Discussion and Questioning	Formative Assessment
13	2	Evaluation of the principal, teacher, and students	Evaluation of the Principal, Teacher, and Students	Discussion and Questioning	Formative Assessment
14	2	Final Review			
15	2	Final Exam	Final Exam	Discussion and Questioning	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Educational Administration – Concept, Theories, and Tools by Dr. Salah Abdul Hamid Mustafa, Dr. Najat Abdullah Al-Nabih.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing periodicals and sources related to the course.
b. Electronic References, Internet Sites, etc.	Utilizing the Internet as a known source of information.

Course Development Plan

1. The course is developed according to changes and developments in society.
 2. The course is developed according to requirements that emerge from curriculum development in the global system.
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Course Description Form

Field	Details
Course Name	Environment and Health
Course Code	ENVFI2
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year
Total Study Hours	30 hours

Field	Details
Number of Units	2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Prof. Dr. Zuhair Hussein Jawad
Email	basicsci6@uodiyala.edu.iq

Course Objectives

The student should be able to:

- 1- Define health.
 - 2- Enumerate the most important fields of health education.
 - 3- Understand the concept of health and health education.
 - 4- Enumerate the methods and techniques of health education.
 - 5- Define disease.
 - 6- Explain the causes of disease transmission.
 - 7- Mention the symptoms of diseases and malnutrition.
 - 8- Distinguish between healthy and unhealthy habits.
 - 9- Explain first aid and its correct methods when needed.
 - 10- Enumerate the factors and causes of diseases.
 - 11- Explain the benefit of vaccines in preserving human life.
-

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	The student should know the concept of health.
A2	The student should understand the correct methods of maintaining an environment free from diseases.
A3	The student should explain how to prevent diseases.
A4	The student should analyze disease symptoms correctly.

Code	Objective
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A5	The student should explain the causes of disease.
A6	The student should distinguish between healthy and unhealthy habits.
A7	The student should enumerate the methods and techniques of health education.
A8	The student should identify diseases resulting from malnutrition.
A9	The student should deduce the relationship between food, physical development, and health.

B. Skills Objectives of the Course

Code	Skill
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B1	Draw a diagram illustrating the relationship between health and food.
B2	Draw a diagram illustrating the relationship between health, vaccines, and infectious diseases.
B3	Ability to preserve the environment, whether individually or collectively.
B4	Ability to transform acquired knowledge into essential practical skills – the tangible outcome of actions, behavior, and knowledge.

Teaching and Learning Methods

- Lecture method.
- Questioning method.
- Discussion method.
- Problem-solving.

Assessment Methods

- Written exam.
- Oral exam.
- Scientific research and reports.

C. Affective and Value Objectives

Code	Objective
C1	Appreciate the role of health departments in protecting citizens from disease.
C2	Appreciate the role of scientists and doctors in discovering many types of vaccines to save humanity from deadly diseases.

Teaching and Learning Methods (Affective)

- Lecture method.
 - Discussion method.
 - Questioning method.
 - Problem-solving.
 - Discovery.
-

Assessment Methods (Affective)

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

Code	Skill
D1	Skill in dealing with disease.
D2	Skill and understanding of health education methods and techniques.
D3	Skill in linking disease symptoms with prevention.
D4	Understanding the ideal method of choosing healthy food.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	2	The student should know the concept of public health and how to achieve it	Concept of Public Health, Its Components, and How to Achieve It	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
2	2	The student should understand health and environmental education and its objectives – enumerate the risks threatening health	Concept of Health Education and Its Objectives	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
3	2	The student should enumerate the fields of health education	Fields of Health	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
4	2	The student should mention the methods and objectives of health education	Methods and Techniques of Health Education	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
5	2	The student should explain how to maintain school health	School Health	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
6	2	The student should explain the objectives of health education	Objectives of Health Education	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
7	2	The student should analyze food elements and their benefits – explain the concept of a balanced diet	Food Elements	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
8	2	First Month Exam			Written and Oral Performance Tests
9	2	The student should understand the importance of vaccines for children	Factors and Causes of Diseases	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
10	2	The student should know the danger of communicable diseases – explain methods of combating infectious diseases	Communicable Diseases	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
11	2	The student	Diseases	Lecture,	Written and

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		should enumerate the most important diseases affecting children	Affecting Children	Laboratory, Discussion, Simulation	Oral Performance Tests
12	2	The student should understand that smoking, alcohol, and drug addiction are harmful habits	Some Harmful Habits	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
13	2	The student should understand the necessity of learning first aid – identify the elements of first aid	First Aid	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
14	2	The student should explain the necessity of the home pharmacy	Home Pharmacy	Lecture, Laboratory, Discussion, Simulation	Written and Oral Performance Tests
15	2	Second Month Exam			Written and Oral Performance Tests

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Health Education, Thamer Al-Mallah, 2012. Health Education and First Aid, 2009. Internet.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Public health books. Articles on environmental health. Scientific reports.
b. Electronic References, Internet Sites, etc.	http://kenanaonline.com/users/tamer2011-com/posts/435357 - Concept of Health Education. http://mu.edu.iq/ ...

Course Development Plan

- Provide presentation means in lecture halls for showing films and videos about diseases and everything related to health education.
- Add modern diet programs for prevention of obesity.
- Establish a relationship with the Diyala Health Department to allow our students field visits to learn about the health reality practically and how to advance it in our beloved country.

Course Description Form

Field	Details
Course Name	Arabic Literature
Course Code	PRFO LA1
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Seventh / Fourth Year

Field	Details
Total Study Hours	30 hours
Number of Units	2
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Rabia Hussein Mahdi
Email	basica59te@uodiyala.edu.iq

Course Objectives

- 1- Introduce students to the concept of Arabic literature and its historical development.
 - 2- Identify the most prominent literary schools and intellectual trends.
 - 3- Develop literary appreciation skills and textual analysis.
 - 4- Enhance the correctness of the Arabic language in oral and written expression.
 - 5- Develop critical thinking through the study of literary texts.
-

Learning Outcomes

By the end of the course, the student should be able to:

1. Define the basic concepts of Arabic literature.
 2. Distinguish between the characteristics of different literary periods.
 3. Analyze poetic and prose texts.
 4. Employ rhetorical methods in understanding texts.
 5. Prepare reports and brief presentations on literary topics.
-

Teaching and Learning Strategies

1. Lecture.
2. Discussion and dialogue.
3. Cooperative learning.
4. Presentations.
5. Literary text analysis.

Assessment Methods

1. Short tests.
 2. Assignments and reports.
 3. Class participation.
 4. Mid-semester exam.
 5. Final exam.
-

Course Syllabus

Week	Topic
Week 1	Concept of Arabic Literature and Its Importance
Week 2	Literature in the Pre-Islamic Era
Week 3	Literature in Early Islam
Week 4	Literature in the Umayyad Era
Week 5	Literature in the Abbasid Era
Week 6	Andalusian Literature
Week 7	Literature in the Era of Decline
Week 8	Mid-Semester Exam
Week 9	Modern Arabic Literature
Week 10	Schools of Modern Poetry
Week 11	Arabic Short Story and Novel
Week 12	Drama and Essay
Week 13	Modern Literary Criticism
Week 14	Analysis of Poetic and Prose Texts
Week 15	General Review

Sources

- History of Arabic Literature – Shawqi Daif.
- On Pre-Islamic Literature – Taha Hussein.
- Modern Arabic Literature – Mohammed Mohammed Hussein.
- Modern references and sources as determined by the instructor.