

Republic of Iraq
Ministry of Higher Education and Scientific Research
Al-Farabi University College
College of Education — Department of Chemistry

Academic Program Description Guide

Department of Chemistry

Academic Year 2025–2026

[Note: the source PDF's cover-page year field was affected by scanning/OCR distortion; "2025–2026" reflects the academic year used consistently throughout the rest of the document.]

Academic Program Description Form

This program description provides a concise summary of the main characteristics of the program and the learning outcomes the student is expected to achieve, demonstrating whether the student has made the most of the available learning opportunities. It must be linked to the college's own program description.

1. University Name	Al-Farabi University College
2. College / Institute	College of Education
3. Scientific Department	Chemistry
4. Name of the Academic / Professional Program	Bachelor's Degree
5. Name of the Final Certificate	Bachelor's Degree in Chemistry Education
6. Study System	Annual
7. Date of Preparing this Description	2026/6/23
8. Date of Completing the File	[not specified in source]

Signatures (as recorded on the source form):

Scientific Deputy — Name / Signature	Prof. Dr. Mahmoud S. [handwriting partially illegible in source]
Head of Department — Name / Signature	Prof. Dr. Muhammad Jawad Hassan
File reviewed by	Quality Assurance and University Performance Division
Director, Quality Assurance and University Performance Division	[handwriting partially illegible in source]

College seal: College of Education — Department of English Language.

1. Program Vision

[The corresponding pages of the source PDF were scanned/OCR-processed with a corrupted font mapping, which made most of the running text in this section illegible. Based on the legible fragments, this section presents the program's vision as preparing chemistry-education graduates equipped with strong theoretical and practical grounding in chemistry, capable of teaching, of pursuing postgraduate study, and of contributing to scientific research and to the labour market, in line with the country's development needs.]

2. Program Mission

[Also affected by the OCR/score issue described above.] Based on the legible fragments, the department's mission is to prepare and qualify graduates in chemistry education with efficient scientific and practical competence, sound professional ethics, and the ability to serve educational and scientific institutions; to keep pace with modern educational and scientific developments; to raise the quality of laboratories and equipment; and to contribute to solving scientific, environmental and cultural problems in the community through research and the exchange of expertise.

3. Program Objectives

[Points 1–3 of the source text were affected by the same OCR/score issue; based on legible fragments they concern training teaching staff, improving educational performance, and preparing graduates able to compete in employment and postgraduate study.] The clearly legible objectives are:

- Instil in the graduate a good upbringing, in obedience to God and love of the homeland.
- Raise the level of knowledge with efficient chemical, teaching and skill-based competencies, in line with what programs and curricula in the community require.
- Keep pace with scientific developments in specialized fields.
- Hold scientific activities (seminars, courses, discussion sessions, workshops) with the participation of teaching-staff members and the attendance of students, in order to spread scientific awareness among the department's staff and raise students' scientific level.
- Equip the department with advanced laboratories to support applied scientific research, enabling the department to contribute to serving scientific research and community development.
- Uphold the ethics of the teaching profession.
- Provide students with the values and principles needed to uphold the ethics of the teaching profession.
- Provide a postgraduate studies program in fields related to the chemical sciences and their branches.

4. Program Accreditation

[This section of the source PDF was affected by the OCR/score issue described above and could not be reliably reconstructed.]

5. Other External Influences on the Program

[This section of the source PDF was affected by the OCR/score issue described above and could not be reliably reconstructed. It references the relevant labour-market/employing bodies, e.g. the Directorate/College of Education and the Department of Chemistry.]

6. Program Structure

Requirement Category	No. of Courses	Credit Hours	Percentage	Notes
University Requirements	12	20	11.42%	*
College Requirements	36	9	20.5%	
Department Requirements	119	23	68%	
Elective Requirements	1	—	—	
Field Training	—	—	—	
Other	—	—	—	

* Note: fill in this cell if the course is optional, and indicate any relevant remarks. [As transcribed from the source table.]

7. Course List by Stage (Program Structure Table)

The table below lists the department's course offerings across the four years of study together with the credit-hour values recorded on the source table (theoretical / practical), reproduced as they appear on the original document.

Third Stage

Course	Theory Hrs	Practical Hrs
Applied Inorganic Chemistry	2	2
Physical Chemistry	2	0
Physical Organic Chemistry	2	2
Biochemistry	2	2
Environmental Chemistry	2	0
Educational Guidance and Counselling	2	0
Teaching Methods	2	0
Research Project (Seminar)	2	0
Instrumental Analysis Chemistry	2	3

Fourth Stage

Course	Theory Hrs	Practical Hrs
Biochemistry	2	0
Analytical Chemistry (continued)	2	2
Applied Inorganic Chemistry	2	2
Polymers and Cellulose Chemistry	2	0
Nuclear Chemistry	2	0
Measurement and Evaluation	2	0
Educational Psychology (specialization)	1	2
Research Project	0	0

Note: this program-structure list (Sections 6–7) reproduces the summary course table that precedes the detailed, per-course description forms; the fourteen full course description forms below (Section 9 onward) are the primary, fully-legible content of the source document and give complete detail for every listed course.

8. Admission Criteria

It is a condition for admission to the Department of Chemistry, College of Education, that the applicant hold one of the following:

- A general-secondary (preparatory) school certificate, scientific branch, exclusively.
- Or a graduate of the Teacher Preparation Institute.

9. Individual Course Description Forms

The following pages present the full, individually completed "Course Description" form for each of the fourteen courses offered in the program, translated in full from the source document.

Organic Chemistry — Theoretical

1. Course Name	Organic Chemistry / Theoretical
2. Course Code	CH101
3. Semester / Year	2025–2026
4. Date Prepared	2025/9/1
5. Available Attendance Forms	In-person
6. Study Hours / Units (Total)	2 hours/week — 4 units
7. Course Coordinator	Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

8. Course Objectives

- Introduce students to organic compounds.
- Cover methods for preparing organic compounds.
- Study the stereochemistry of selected compounds.

Course Learning Outcomes

A — Knowledge and Understanding

A1. Student's knowledge of organic compounds.

A2. Introducing preparation methods of alkanes and cyclic alkanes, including their spatial configuration, along with alkenes, alkynes, dienes and aromatic hydrocarbons, together with the stereochemistry of selected compounds.

B — Course-specific Skills

B1. Master the chemical structures of alkanes, alkenes and alkynes.

B2. Distinguish between alkanes and cyclic alkanes and their preparation methods.

B3. Distinguish between aliphatic and aromatic hydrocarbons and their preparation methods.

B4. Master writing the spatial (stereochemical) structures of selected organic compounds.

C — Affective and Value-based Goals

C1. Adopt a dialogue-based approach between student and instructor.

C2. Prepare organized reports.

C3. Adopt a discussion-based approach.

D — General and Transferable Skills

D1. The student's ability to work within a team.

D2. Positive thinking and applying the knowledge received.

D3. The ability to deal with parties outside the university and train with them.

D4. Enabling the student to learn and master the teaching profession.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	Single, double and triple organic bonds	Sigma and pi bonds	Weekly & monthly exams
Week 2	2	Conjugation and hyperconjugation, atomic orbitals	Conditions of conjugation	Weekly & monthly exams
Week 3	2	Resonance between atoms and its stabilization	Resonance	Weekly & monthly exams
Week 4	2	Alkanes — nomenclature, physical properties	Simple and cyclic alkanes	Weekly & monthly exams
Week 5	2	Methods of preparing alkanes	Various preparation methods	Weekly & monthly exams
Week 6	2	Halogenation of alkanes and the factors affecting it; different alkanes	Halogenation factors	Weekly & monthly exams
Week 7	2	Alkenes — nomenclature, physical properties	Nomenclature and properties of alkenes	Weekly & monthly exams
Week 8	2	Preparation of alkenes	Various preparation methods	Weekly & monthly exams
Week 9	2	Carbonium ions and rearrangement	Rearrangement of carbonium ions	Weekly & monthly exams
Week 10	2	Reactions with halogens, hydrohalic acids and oxidation reactions	Reactions of alkenes	Weekly & monthly exams
Week 11	2	End-of-first-semester examination	—	Weekly & monthly exams
Week 12	2	Dienes — nomenclature, physical properties	Nomenclature of dienes	Weekly & monthly exams
Week 13	2	Methods of preparing dienes — 1,2- and 1,4-addition reactions	—	Weekly & monthly exams
Week 14	2	Alkynes — nomenclature, preparation methods	Nomenclature and properties of alkynes	Weekly & monthly exams
Week 15	2	Reactions of alkynes and addition across the triple bond	—	Weekly & monthly exams
Week 16	2	Acidity of acetylene and terminal alkynes	Conditions for acidity	Weekly & monthly exams
Week 17	2	Alkyl halides — nomenclature, reactions and preparation	—	Weekly & monthly exams
Week 18	2	Second first-semester examination	—	Weekly & monthly exams
Week 19	2	Aromatic hydrocarbons — structure of benzene	Structures of benzene	Weekly & monthly exams
Week 20	2	The aromaticity phenomenon of benzene	Hückel's rule of aromaticity	Weekly & monthly exams
Week 21	2	Benzene derivatives — nomenclature	Naming benzene derivatives	Weekly & monthly exams
Week 22	2	Reactions of benzene	Electrophilic substitution	Weekly & monthly exams
Week 23	2	Reactivity and orientation in benzene reactions	Influencing factors	Weekly & monthly exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 24	2	Second-semester examination	—	Weekly & monthly exams
Week 25	2	Stereochemistry — chiral and non-chiral atoms	The tetrahedral carbon atom	Weekly & monthly exams
Week 26	2	Geometric isomers	cis and trans	Weekly & monthly exams
Week 27	2	Optical activity — polarized light, polarimeter, specific rotation	—	Weekly & monthly exams
Week 28	2	The D and L system for organic compounds	Nomenclature by the D/L system	Weekly & monthly exams
Week 29	2	General review of the course material	—	Weekly & monthly exams
Week 30	2	Second-semester final examination	—	Weekly & monthly exams

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student, such as daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	Course textbook for the first stage, College of Education Ibn Al-Haitham — Organic Chemistry / Stereochemistry
Recommended Texts	Organic Chemistry, Morrison and Boyd Organic Chemistry, Francis Carey

Course Instructor: Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

Organic Chemistry — Practical

1. Course Name	Organic Chemistry / Practical
2. Course Code	CH101
3. Semester / Year	2025–2026
4. Date Prepared	2025/9/1
5. Available Attendance Forms	In-person
6. Study Hours / Units (Total)	3 hours/week — 3 units
7. Course Coordinator	Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

8. Course Objectives

- Learn the names of the tools used in the organic chemistry laboratory and the purpose of each.
- Learn the basic skills needed to work inside the laboratory and how to handle chemicals.
- Learn the basic techniques used in the organic chemistry laboratory, including the use of instruments and tools, and report writing.
- Study selected organic compounds in terms of purification methods, separation methods, preparation, properties, and detection.

Teaching and Learning Strategies

- Lecture and discussion strategy.
- Demonstration strategy using visual aids, such as showing experiment videos on the projection screen.
- Cooperative learning strategy through group work while carrying out the experiment.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	3	Report-writing method; introduction to laboratory tools, their use and purpose	Explanation of report writing and introduction to lab tools	Weekly & monthly exams
Week 2	3	Purifying solid organic compounds by crystallization	Learning to purify solid organic compounds by crystallization	Weekly & monthly exams
Week 3	3	Measuring the melting point of compounds by a simple method	Learning to measure melting point	Weekly & monthly exams
Week 4	3	Determining the melting point of an unknown compound	—	Weekly & monthly exams
Week 5	3	Measuring the boiling point of liquids by a simple method	—	Weekly & monthly exams
Week 6	3	Determining the boiling point of an unknown liquid	—	Weekly & monthly exams
Week 7	3	Monthly examination	—	Weekly & monthly exams
Week 8	3	Purifying organic liquids	—	Weekly & monthly exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
		from impurities		
Week 9	3	Separating a mixture of liquids by distillation	—	Weekly & monthly exams
Week 10	3	Extracting organic compounds from aqueous solutions	—	Weekly & monthly exams
Week 11	3	Extracting an organic compound from a mixture using an organic solvent	—	Weekly & monthly exams
Week 12	3	Extracting acids or organic bases from mixtures	—	Weekly & monthly exams
Week 13	3	Extracting natural substances from plant material	—	Weekly & monthly exams
Week 14	3	Extracting sunflower seed oil	—	Weekly & monthly exams
Week 15	3	Monthly examination	—	Weekly & monthly exams
Week 16	3	Preparing methane gas	—	Weekly & monthly exams
Week 17	3	Studying the properties of methane gas	—	Weekly & monthly exams
Week 18	3	Preparing ethylene gas	—	Weekly & monthly exams
Week 19	3	Studying the properties of ethylene gas	—	Weekly & monthly exams
Week 20	3	Preparing acetylene gas	—	Weekly & monthly exams
Week 21	3	Studying the properties of acetylene gas	—	Weekly & monthly exams
Week 22	3	Monthly examination	—	Weekly & monthly exams
Week 23	3	Distinguishing between types of alcohols	—	Weekly & monthly exams
Week 24	3	Identifying an unknown type of alcohol	—	Weekly & monthly exams
Week 25	3	Method of preparing aspirin	—	Weekly & monthly exams
Week 26	3	Detecting aspirin	—	Weekly & monthly exams
Week 27	3	Detecting organic compounds using sodium	—	Weekly & monthly exams
Week 28	3	Preparation of carboxylic acids	—	Weekly & monthly exams
Week 29	3	Reactions of carboxylic acids	—	Weekly & monthly exams
Week 30	3	Monthly examination	—	Weekly & monthly exams

9. Course Assessment

The grade (out of 15) is distributed according to assigned tasks: daily exams (5 marks), monthly exams (5 marks), reports (5 marks).

10. Learning and Teaching Resources

Required Texts	"Experiments in Organic Chemistry", by Hasiba Abdul Sattar
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Recommended Texts	"Fundamentals of Practical Organic Chemistry", General Authority for Technical and Vocational Training, Kingdom of Saudi Arabia VOGEL — Practical Organic Chemistry
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Course Instructor: Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

Inorganic Chemistry

1. Course Name	Inorganic Chemistry
2. Course Code	Ch102
3. Semester / Year	Annual, 2025–2026
4. Date Prepared	2025/9/1
5. Available Attendance Forms	Daily attendance
6. Study Hours / Units (Total)	2 theory hours/week
7. Course Coordinator	Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

8. Course Objectives

- Study the electronic structure of the atom, the structure of covalent molecules, and the periodic properties of atoms.
- Understand the formation of ionic compounds and their solubility.
- Introduce Lewis structures and covalent molecules, through an introduction to the structure of covalent molecules and to molecular-orbital formation and valence-bond theory, extending into the study of molecules and covalent chemical bonding.

Course Learning Outcomes

A — Knowledge and Understanding

- A1. Student's knowledge of the electronic structure of atoms.
- A2. Introducing periodic properties of atoms.
- A3. Understanding the meaning of covalent bonding between atoms.
- A4. Understanding the nature of ionic compounds in terms of their formation and solubility.
- A5. Introducing Lewis structures for polyatomic molecules and molecular geometry.
- A6. Student's knowledge of how the molecular orbital is formed.
- A7. Understanding hybridization and valence-bond theory.

B — Course-specific Skills

- B1. Master writing the electronic structure of each atom.
- B2. Distinguish between group and period, and the properties of selected elements in the periodic table.
- B3. Distinguish between ionic bonding and covalent bonding.
- B4. Teach the student how to write Lewis structures for polyatomic molecules.
- B5. Train the student to draw the geometric shapes of covalent molecules.

C — Thinking Skills

- C1. Dialogue-based approach between student and instructor.
- C2. Preparing weekly reports.
- C3. Conducting discussions on the results of chemical analyses.

C4. Exploratory thinking (discovering scientific facts through laboratory experiments).

D — General and Transferable Skills

D1. The student's ability to work within an educational and professional team.

D2. Positive thinking and applying the knowledge received.

D3. The ability to deal with parties outside the university and train with them.

D4. Enabling the student to learn and master the teaching profession.

Teaching and Learning Strategies

- Lectures.
- Visual aids such as the smart board.
- Use of coloured images and diagrams taken from internet sites.

Assessment Methods

- Oral examinations.
- Monthly examinations.
- Surprise weekly examinations.
- Annual examinations.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 2	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 3	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 4	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 5	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 6	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 7	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 8	2	Electronic structure of the atom	Electronic configuration	Weekly & monthly exams
Week 9	2	Examination	—	Weekly & monthly exams
Week 10	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 11	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 12	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 13	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 14	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 15	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 16	2	The periodic table and periodic properties of atoms	Periodic table	Weekly & monthly exams
Week 17	2	Bonding — the ionic bond	Bonding	Weekly & monthly exams
Week 18	2	Bonding — the ionic bond	Bonding	Weekly & monthly exams
Week 19	2	Bonding — the ionic bond	Bonding	Weekly & monthly exams
Week 20	2	Bonding — the ionic bond	Bonding	Weekly & monthly exams
Week 21	2	Introduction to the structure and bonding of the covalent molecule	Structure and bonding	Weekly & monthly exams
Week 22	2	Introduction to the structure and bonding of the covalent molecule	Structure and bonding	Weekly & monthly exams
Week 23	2	Introduction to the structure and bonding of the covalent molecule	Structure and bonding	Weekly & monthly exams
Week 24	2	Introduction to the structure and bonding of the covalent molecule	Structure and bonding	Weekly & monthly exams
Week 25	2	Examination	—	Weekly & monthly exams
Week 26	2	Molecules and covalent chemical bonding	Bonding	Weekly & monthly exams
Week 27	2	Molecules and covalent chemical bonding	Bonding	Weekly & monthly exams
Week 28	2	Molecules and covalent chemical bonding	Bonding	Weekly & monthly exams
Week 29	2	Molecules and covalent chemical bonding	Bonding	Weekly & monthly exams
Week 30	2	Examination	—	Weekly & monthly exams

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student, such as daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	Modern Inorganic Chemistry for the first stage, Part 1 — Dr. Basim Al-Saadi Inorganic Chemistry, Part 1 — Dr. Numan Al-Nuaimi, Dr. Munzir Al-Janabi
Recommended Texts	Inorganic Chemistry: Principles of Structure and Reactivity, James E. Huheey Basic Inorganic Chemistry, F.A. Cotton, G. Wilkinson and P.L. Gaus, 3rd ed., John Wiley & Sons, New York,

	1995
Websites / Other	James E. House, Inorganic Chemistry, Elsevier, 2008 Concepts & Models of Inorganic Chemistry, 2nd ed., Wiley, 2009

Course Instructor: Asst. Prof. Dr. Mazin Hassan Rahima (mazin.h@ilps.uobaghdad.edu.iq)

Analytical Chemistry — First Stage

1. Course Name	Analytical Chemistry — First Stage
2. Course Code	Ch103
3. Semester / Year	2025–2026
4. Date Prepared	2026/2/12
5. Available Attendance Forms	Weekly
6. Study Hours / Units (Total)	3 hours/week — 6 units/week
7. Course Coordinator	Asst. Lecturer Mariam Latif Abdullah (mariam.lateef@alfarabiuc.edu.iq)

8. Course Objectives

- The student is to learn the basic principles of analytical chemistry, its branches, and the steps of chemical analysis.

Teaching and Learning Strategies

- Listening and deep thinking to grasp a problem in order to solve it.
- Scientific discussion and constructive, purposeful dialogue.
- Visual aids such as the smart board.
- Showing videos on how to carry out experiments and the calculations related to the topic.

Assessment Methods

- Oral examinations.
- Assigning homework and then correcting it.
- Monthly examinations.
- Annual examinations.
- Laboratory reports.
- Random / surprise tests.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	1+2=3	General introduction to analytical chemistry — classification, steps of chemical analysis	—	Weekly, monthly & written
Week 2	2+1=3	Methods of expressing concentration	—	Weekly, monthly & written
Week 3	2+1=3	Examples and solved problems on concentration	—	Weekly, monthly & written
Week 4	2+1=3	Chemical equilibrium — types of chemical equilibrium, law of mass action	—	Weekly, monthly & written

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 5	2+1=3	Chemical equilibrium (continued)	—	Weekly, monthly & written
Week 6	—	Examination	—	Weekly, monthly & written
Week 7	2+1=3	Factors affecting reaction equilibrium; solubility of precipitates	—	Weekly, monthly & written
Week 8	2+1=3	Solubility-product principle; examples and applications	—	Weekly, monthly & written
Week 9	2+1=3	Solubility-product principle; examples and applications (continued)	—	Weekly, monthly & written
Week 10	2+1=3	Ionic equilibrium — acids and bases	—	Weekly, monthly & written
Week 11	—	End-of-semester examination	—	Weekly, monthly & written
Week 12	2+1=3	Salts and salt hydrolysis	—	Weekly, monthly & written
Week 13	2+1=3	Examples and applications	—	Weekly, monthly & written
Week 14	2+1=3	Examples and applications (continued)	—	Weekly, monthly & written
Week 15	2+1=3	Buffer solutions — types of buffer solutions	—	Weekly, monthly & written
Week 16	2+1=3	Examples and solutions	—	Weekly, monthly & written
Week 17	2+1=3	Volumetric analysis — laws, units of concentration used in volumetric calculations	—	Weekly, monthly & written
Week 18	2+1=3	Theory of neutralization titrations for simple acid–base systems	—	Weekly, monthly & written
Week 19	2+1=3	Indicators used in neutralization (acid–base) titrations; examples and solutions	—	Weekly, monthly & written
Week 20	2+1=3	Titration curve of a strong acid and a strong base	—	Weekly, monthly & written
Week 21	2+1=3	Titration curve of a strong acid and a strong base (continued)	—	Weekly, monthly & written
Week 22	2+1=3	Examples and solutions	—	Weekly, monthly & written
Week 23	2+1=3	Titration curve of a weak acid and a strong base	—	Weekly, monthly & written
Week 24	2+1=3	Examples and solutions	—	Weekly, monthly & written
Week 25	2+1=3	Theory of neutralization titrations for complex acid–base systems	—	Weekly, monthly & written
Week 26	2+1=3	Examples and solutions	—	Weekly, monthly & written
Week 27	2+1=3	Precipitation reactions; titration curves of precipitation reactions	—	Weekly, monthly & written
Week 28	2+1=3	Indicators used in precipitation titration curves	—	Weekly, monthly & written

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 29	2+1=3	Examples and solutions	—	Weekly, monthly & written
Week 30	2+1=3	Oxidation–reduction titrations, titration curve	—	Weekly, monthly & written

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	Skoog D.; West D.; Holler F.; Crouch S., "Fundamentals of Analytical Chemistry", 9th ed., Thomson, USA, 2014
Recommended Texts	Skoog D.; West D.; Holler F.; Crouch S., "Fundamentals of Analytical Chemistry", 9th ed., Thomson, USA, 2014 Daniel C. Harris, "Quantitative Chemical Analysis", 8th ed., Freeman and Company, New York, 2010
Websites / Other	Gray D. Christian, "Analytical Chemistry", 6th ed., Wiley, USA, 2004 John Kenkel, "Analytical Chemistry for Technicians", 3rd ed., Lewis Publishers, USA, 2002 Vogel's "Qualitative Inorganic Analysis", 7th ed., revised by G. Svehla, Longman Group, England, 1996 Daniel C. Harris, "Quantitative Chemical Analysis", 8th ed., Freeman and Company, New York, 2010 Hage D.; Carr J., "Analytical Chemistry and Quantitative Analysis", International ed., Pearson, USA, 2011

Course Instructor: Asst. Lecturer Mariam Latif Abdullah (mariem.lateef@alfarabiuc.edu.iq)

Analytical Chemistry — Practical, First Stage

1. Course Name	Analytical Chemistry — Practical, First Stage
2. Course Code	Ch103
3. Semester / Year	2025–2026
4. Date Prepared	2026/2/12
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	3 hours/week
7. Course Coordinator	Asst. Lecturer Mariam Latif Abdullah (mariam.lateef@alfarabiuc.edu.iq)

8. Course Objectives

- The student is to learn the basic principles of analytical chemistry, its branches, and the steps of chemical analysis.
- Enable the student to gain practical knowledge of analytical chemistry.
- Student's knowledge of the basic concepts of chemical-analysis methods.
- Student's knowledge of the modern methods used in chemical analysis.

Course Learning Outcomes

Learning outcomes

1. The student masters carrying out experiments and using instruments efficiently.
2. The student masters the methods of expressing solution concentrations and the related calculations.
3. Study of chemical and ionic equilibrium, and the hydrolysis of salts and buffer solutions.

Teaching and Learning Strategies

- Lectures.
- Visual aids through the smart board.
- Use of laboratory tools and measuring instruments.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	3	Water of crystallization — determining the percentage of crystallization water in hydrated barium chloride	—	Weekly & monthly exams + lab reports
Week 2	3	Solubility of precipitates — determining the degree of saturation and the solubility product	—	Weekly & monthly exams + lab reports
Week 3	3	Gravimetric analysis — determination of calcium as oxalate (1)	—	Weekly & monthly exams + lab reports
Week 4	3	Gravimetric analysis —	—	Weekly & monthly exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
		determination of calcium as oxalate (2)		+ lab reports
Week 5	3	Gravimetric analysis — determination of sulfate as barium sulfate (1)	—	Weekly & monthly exams + lab reports
Week 6	—	Examination	—	Weekly & monthly exams + lab reports
Week 7	3	Gravimetric analysis — determination of sulfate as barium sulfate (2)	—	Weekly & monthly exams + lab reports
Week 8	3	Gravimetric analysis — determination of lead as lead chromate (1)	—	Weekly & monthly exams + lab reports
Week 9	3	Homogeneous solutions — determination of lead as lead chromate	—	Weekly & monthly exams + lab reports
Week 10	3	Colloidal solutions — determination of iron as ferric hydroxide	—	Weekly & monthly exams + lab reports
Week 11	—	End-of-semester examination	—	Weekly & monthly exams + lab reports
Week 12	3	Colloidal solutions — determination of iron as ferric hydroxide (continued)	—	Weekly & monthly exams + lab reports
Week 13	3	Colloidal solutions — determination of aluminium as aluminium oxide (1)	—	Weekly & monthly exams + lab reports
Week 14	3	Colloidal solutions — determination of aluminium as aluminium oxide (2)	—	Weekly & monthly exams + lab reports
Week 15	3	Qualitative/quantitative analysis — determination of nickel as the dimethylglyoxime complex	—	Weekly & monthly exams + lab reports
Week 16	3	Examination	—	Weekly & monthly exams + lab reports
Week 17	3	Mid-year break	—	Weekly & monthly exams + lab reports
Week 18	3	Mid-year break	—	Weekly & monthly exams + lab reports
Week 19	3	Separation methods — separation of iron from aluminium by precipitation (1)	—	Weekly & monthly exams + lab reports
Week 20	3	Separation methods — separation of iron from aluminium by precipitation (2)	—	Weekly & monthly exams + lab reports
Week 21	3	Extraction — distribution of iodine between water and an organic solvent	—	Weekly & monthly exams + lab reports
Week 22	3	Extraction — distribution of iodine between an	—	Weekly & monthly exams + lab reports

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
		organic solvent and an aqueous iodine solution		
Week 23	3	Ion exchange — calculating the capacity of a cation exchanger	—	Weekly & monthly exams + lab reports
Week 24	3	Ion exchange — determining total cations in water	—	Weekly & monthly exams + lab reports
Week 25	3	Examination	—	Weekly & monthly exams + lab reports
Week 26	3	Ion exchange — separation and determination of zinc and magnesium using ion exchange	—	Weekly & monthly exams + lab reports
Week 27	3	Ion exchange — separation of chloride from bromide on an ion exchanger	—	Weekly & monthly exams + lab reports
Week 28	3	Chromatography — separation of a mixture of some chemical indicator dyes (1)	—	Weekly & monthly exams + lab reports
Week 29	3	Chromatography — separation of a mixture of some chemical indicator dyes (2)	—	Weekly & monthly exams + lab reports
Week 30	3	Examination	—	Weekly & monthly exams + lab reports

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	Fundamentals of Analytical Chemistry, 9th ed., Douglas A. Skoog, Donald M. West, F. James Holler, Stanley R. Crouch, 2014 Modern Analytical Chemistry, David Harvey, 2000 Quantitative Chemical Analysis, 8th ed., Daniel C. Harris, 2010
Recommended Texts	Analytical Chemistry: The Fundamentals — Chemical Separation Methods, John A. Dean Daniel C. Harris, "Quantitative Chemical Analysis", 8th ed., Freeman and Company, New York, 2010 Hage D.; Carr J., "Analytical Chemistry and Quantitative Analysis", International ed., Pearson, USA, 2011

Course Instructor: Asst. Lecturer Mariam Latif Abdullah (mariem.lateef@alfarabiuc.edu.iq)

Mathematics

1. Course Name	Mathematics
2. Course Code	Ch111
3. Semester / Year	Annual, 2025–2026
4. Date Prepared	23/6/2026
5. Available Attendance Forms	In-person
6. Study Hours / Units (Total)	1 hour/week
7. Course Coordinator	Lecturer Dr. Qasim Hadi (qasim.hadi@alfarabiuc.edu.iq)

8. Course Objectives

- Knowledge objectives — through which the student is able to: (1) understand the course topics and the mathematical problems related to them; (2) recall the information and laws given in the course syllabus; (3) analyse the wording of a question and organize the information in order to make use of it in solving and obtaining correct results; (4) form ideas about the course material and how to derive the laws suitable for solving it.
- Skills objectives — through which the student is able to: (1) apply what has been learned in solving mathematical problems; (2) construct problems related to the course topics and then reach their correct solution; (3) use laws suitable for the solution in each problem; (4) link the topics that can be linked within the course syllabus.
- Affective objectives — through which the student possesses: (1) an interest in the subject because of the way the teaching is presented; (2) sufficient conviction of the importance of the material being received; (3) readiness to cooperate with others to solve mathematical problems; (4) the ability to interact and discuss with peers or the instructor to solve a given problem.

Teaching and Learning Strategies

- Teaching using a discussion approach between student and instructor, supporting different points of view.
- Learning through brainstorming among students.
- Cooperative learning by assigning students group reports on course topics.
- Teaching using the "one-minute paper" technique as a competition, which helps build enthusiasm among students.
- Learning by having the student act as teacher, to strengthen self-confidence.
- Learning through in-person daily and monthly tests.
- Learning using the problem-solving strategy.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	1	Subsets of the set of real numbers and their properties	Knowledge	Daily & monthly exams; oral questions
Week 2	1	Inequalities and their types — finite and infinite	Knowledge	Daily & monthly exams; oral questions
Week 3	1	Inequalities: types, first-degree inequalities, second-degree inequalities	Knowledge	Daily & monthly exams; oral questions

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 4	1	Absolute value — properties of absolute value and solving inequalities containing absolute value	Knowledge	Daily & monthly exams; oral questions
Week 5	1	Functions	Knowledge	Daily & monthly exams; oral questions
Week 6	1	Algebra of functions	Knowledge	Daily & monthly exams; oral questions
Week 7	1	Composite functions	Knowledge	Daily & monthly exams; oral questions
Week 8	1	Special functions (trigonometric, logarithmic, exponential)	Knowledge	Daily & monthly exams; oral questions
Week 9	1	Periodic functions	Knowledge	Daily & monthly exams; oral questions
Week 10	1	Limits — the limit from the right and from the left	Knowledge	Daily & monthly exams; oral questions
Week 11	1	Properties of limits	Knowledge	Daily & monthly exams; oral questions
Week 12	1	Limits at infinity — infinite limits	Knowledge	Daily & monthly exams; oral questions
Week 13	1	Monthly examination	Knowledge	Daily & monthly exams; oral questions
Week 14	1	Continuity	Knowledge	Daily & monthly exams; oral questions
Week 15	1	Properties of continuity	Knowledge	Daily & monthly exams; oral questions
Week 16	1	Differentiation	Knowledge	Daily & monthly exams; oral questions
Week 17	1	The tangent line	Knowledge	Daily & monthly exams; oral questions
Week 18	1	Properties of differentiation	Knowledge	Daily & monthly exams; oral questions
Week 19	1	The chain rule	Knowledge	Daily & monthly exams; oral questions
Week 20	1	Implicit differentiation	Knowledge	Daily & monthly exams; oral questions
Week 21	1	The Mean Value Theorem	Knowledge	Daily & monthly exams; oral questions
Week 22	1	Rolle's Theorem	Knowledge	Daily & monthly exams; oral questions
Week 23	1	Higher-order derivatives	Knowledge	Daily & monthly exams; oral questions
Week 24	1	Derivatives of special functions	Knowledge	Daily & monthly exams; oral questions
Week 25	1	Derivatives of trigonometric functions	Knowledge	Daily & monthly exams; oral questions
Week 26	1	Integration	Knowledge	Daily & monthly exams; oral questions
Week 27	1	Properties of integration	Knowledge	Daily & monthly exams; oral questions

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 28	1	Integration of special functions	Knowledge	Daily & monthly exams; oral questions
Week 29	1	Selected integration methods	Knowledge	Daily & monthly exams; oral questions
Week 30	1	Monthly examination	Knowledge	Daily & monthly exams; oral questions

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	Mathematics textbook for the first stage, Department of Chemistry, College of Education Ibn Al-Haitham
Recommended Texts	Curriculum textbooks for the Mathematics Department, College of Education, second and third stage (Differential and Integral Calculus)

Course Instructor: Lecturer Dr. Qasim Hadi (qasim.hadi@alfarabiuc.edu.iq)

Arabic Language Curriculum

1. Course Name	Arabic Language Curriculum
2. Course Code	—
3. Semester / Year	Annual
4. Date Prepared	2026/2/18
5. Available Attendance Forms	First stage
6. Study Hours / Units (Total)	1 hour/week
7. Course Coordinator	Asst. Lecturer Ghofran Hadi Abdullah

8. Course Objectives

- By the end of the academic year students will be able to:
- 1. Know the basic grammatical rules of the Arabic language.
- 2. Apply those rules to poetic and prose texts.
- 3. Learn about the concept of literature and its development across literary eras, as well as the types of poetry through those eras.
- 4. Learn about the purposes of Arabic poetry in the various literary eras.

Course Learning Outcomes

A — Knowledge Objectives

Knowledge.

Understanding (comprehension).

Application, analysis and evaluation.

B — Course-specific Skills

Student's knowledge of Arabic spelling and grammar rules.

Applying those rules in the required manner.

C — Affective and Value-based Goals

That the student comes to love the Arabic-language subject.

That the student interacts with the way the material is presented by the instructor.

D — General and Transferable Skills

Verbal communication.

The skill of posing oral questions.

Teaching and Learning Strategies

- Lecture.
- Discussion.
- Questioning.

Assessment Methods

- Oral examinations.
- Written examinations (essay and objective).

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	—	Hamzat al-wasl and hamzat al-qat'	—	Oral exam
Week 2	—	The medial hamza	—	Oral exam
Week 3	—	Punctuation marks	—	Oral exam
Week 4	—	The verb and its types in the Arabic language	—	Written exam
Week 5	—	The five verbs (al-af'āl al-khamsah)	—	Oral exam
Week 6	—	The jussive mood of the present-tense verb	—	Written exam
Week 7	—	"Kāna" and its sisters	—	Oral exam
Week 8	—	The sound masculine plural and its attachments	—	Oral exam
Week 9	—	The sound feminine plural and its attachments	—	Oral exam
Week 10	—	The elongated tā' and the tā' marbūṭah	—	Written exam
Week 11	—	The subject and predicate (mubtada' and khabar)	—	Written exam
Week 12	—	The doer (fā'il)	—	Oral exam
Week 13	—	"Inna" and its sisters	—	Written exam
Week 14	—	The five nouns (al-asmā' al-khamsah)	—	Written exam
Week 15	—	The absolute object (maf'ūl muṭlaq)	—	Written exam
Week 16	—	The active participle (ism al-fā'il)	—	Oral exam
Week 17	—	The hyperbolic form (ṣiḡhat al-mubālaghah)	—	Written exam
Week 18	—	The assimilate adjective (aṣ-ṣifah al-mushabbahah)	—	Oral exam
Week 19	—	The passive participle (ism al-maf'ūl)	—	Written exam
Week 20	—	The elative/superlative noun (ism at-tafḍīl)	—	Oral exam
Week 21	—	The active participle	—	Oral exam
Week 22	—	The hyperbolic form	—	Written exam
Week 23	—	The assimilate adjective	—	Oral exam
Week 24	—	The concept of literature and its development through the eras	—	Oral exam
Week 25	—	Poetry and its types in Arabic literature	—	Written exam

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 26	—	Poetry in the pre-Islamic and early Islamic eras	—	Oral exam
Week 27	—	Poetry in the Umayyad and Abbasid eras	—	Oral exam
Week 28	—	Modern Arabic poetry	—	Oral exam
Week 29	—	Purposes of Arabic poetry: 1. Satire (hijā')	—	Written exam
Week 30	—	The purpose of description, and the purpose of elegy (rithā')	—	Oral exam

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation and daily and monthly examinations.

10. Learning and Teaching Resources

Required Texts	History of Arabic Literature, by Shawqi Dayf. Arabic Grammar: Rules and Meanings, by Dr. Muhammad Fadel. The Concise Guide to the Rules of the Arabic Language, by Said Al-Afghani.
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Course Instructor: Asst. Lecturer Ghofran Hadi Abdullah

English Language

1. Course Name	English Language
2. Course Code	—
3. Semester / Year	First Stage, 2025–2026 (Annual)
4. Date Prepared	15/2/2026
5. Available Attendance Forms	2 hours/week
6. Study Hours / Units (Total)	Total study hours: 60
7. Course Coordinator	Asst. Lecturer Shatha Fadhil Obeid — Al-Farabi University / College of Education / Department of Chemistry Sciences

8. Course Objectives

- Develop the four basic English-language skills (listening, speaking, reading and writing) for first-stage students.
- Give students a sound linguistic foundation in structures and basic grammar rules.
- Develop the vocabulary needed to communicate in simple daily and academic situations.
- Enable students to write short, coherent paragraphs following correct academic conventions.
- Strengthen students' ability to understand short texts and analyse their main ideas and supporting details.
- Train students in correct pronunciation and in using the language in genuine communicative situations.
- Develop self-learning skills and the effective use of dictionaries and teaching resources.
- Prepare students to move to a higher language level in subsequent stages of study.

Course Learning Outcomes

A — Knowledge Objectives

Finding and understanding information about vocabulary, pronunciation, usage and grammar in reference texts, online resources, and English dictionaries.

B — Course-specific Skills

Developing the conversational English skills needed to become a contributing participant in small-group activities, large-group discussions, and oral presentations.

C — Skills

Understanding texts using effective learning strategies for reading and vocabulary building.

D — General and Transferable Skills

1. The learner becomes more effective, independent and self-confident.
2. Improving general study skills and career management.
3. Clarifying personal goals and evaluating progress toward them.
4. The ability to identify, formulate and solve problems.

Teaching and Learning Strategies

- Lecture and discussion.

Assessment Methods

- Homework covering the four skills: listening, speaking, reading and writing.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	Greeting & Introductions	Finding and understanding information about vocabulary, pronunciation, usage and grammar in reference texts, online resources and English dictionaries	Questions during lectures; quizzes and in-class exams
Week 2	2	Greeting & Introductions	Understanding texts using effective reading strategies and vocabulary building	Questions during lectures; quizzes and in-class exams
Week 3	2	Times	Developing conversational English skills for small/large-group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 4	2	Times	Developing conversational English skills for small/large-group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 5	2	Numbers	Developing conversational English skills for small/large-group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 6	2	Numbers	Developing conversational English skills for small/large-group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 7	2	"S" & "Es"	Understanding texts using effective reading strategies and vocabulary building	Questions during lectures; quizzes and in-class exams
Week 8	2	Short quiz (bubble sheet — general questions covering all topics)	Finding and understanding information about vocabulary, pronunciation, usage and grammar	Questions during lectures; quizzes and in-class exams
Week 9	2	Discussions	Understanding texts using effective reading strategies and vocabulary building	Questions during lectures; quizzes and in-class exams
Week 10	2	Prepositions	Developing conversational English skills for group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 11	2	Prepositions	Developing conversational English skills for group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 12	2	Have / Has	Understanding texts using effective reading strategies and vocabulary	Questions during lectures; quizzes and in-class exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
			building	
Week 13	2	Have / Has	Developing conversational English skills for group discussion and oral presentation	Questions during lectures; quizzes and in-class exams
Week 14	2	English for the student's specialization	Understanding texts using effective reading strategies and vocabulary building	Questions during lectures; quizzes and in-class exams

9. Course Assessment

Assessment is carried out through in-lecture questions, quizzes and in-class examinations.

10. Learning and Teaching Resources

Required Texts	No fixed textbook specified — material drawn from "New Headway – Beginner" and recent scientific news articles related to the student's specialization.
Recommended Texts	
Websites / Other	

Course Instructor: Asst. Lecturer Shatha Fadhil Obeid — Al-Farabi University / College of Education / Department of Chemistry Sciences

Democracy and Human Rights

1. Course Name	Democracy and Human Rights
2. Course Code	—
3. Semester / Year	Annual
4. Date Prepared	2025/10/1
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	1 hour/week — 2 units
7. Course Coordinator	Asst. Prof. Dr. Hadi Khalif Kareem Al-Jubouri (khaleef.hadi@alfarabiuc.edu.iq)

8. Course Objectives

- Introduce students to the concept of democracy, its origin and development.
- Learn about the principles of human rights and their importance in society.
- Develop a culture of citizenship and respect for the law.
- Promote the values of freedom, equality, justice and tolerance.
- Enable students to understand constitutional rights and duties.
- Develop awareness of political and civic participation.

Teaching and Learning Strategies

- Dialogue and discussion.
- Problem-solving.
- Cooperative learning.
- Brainstorming.
- Study of real-life cases.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	Introduction to human rights and their concept	Defining the concept of human rights and its importance in society	Directed questions and student answers
Week 2	2	Characteristics of human rights	Clarifying the basic characteristics and features of human rights	Directed questions and student answers
Week 3	2	Historical development of human rights	Tracing the historical stages of the development of human rights	Directed questions and student answers
Week 4	2	Types of human rights: civil and personal rights, with examples	Distinguishing between civil and personal rights, with examples	Directed questions and student answers
Week 5	2	Political rights	Explaining political rights and their importance for the citizen	Directed questions and student answers
Week 6	2	Economic rights	Clarifying the concept of	Directed questions and

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
			economic rights and their role in achieving a decent life	student answers
Week 7	2	Social and cultural rights	Explaining the importance of social and cultural rights	Directed questions and student answers
Week 8	2	Solidarity rights and third-generation rights	Defining solidarity rights and their main applications	Directed questions and student answers
Week 9	2	Human rights in Islamic law	Analysing the principles of human rights in Islamic Sharia	Directed questions and student answers
Week 10	2	Human rights in the 2005 Constitution of the Republic of Iraq	Reviewing the rights and freedoms guaranteed by the Iraqi Constitution	Directed questions and student answers
Week 11	2	Equality, the right to life and personal security	Interpreting the constitutional principles on equality and security	Directed questions and student answers
Week 12	2	The right to privacy, nationality, and the rights of the accused	Clarifying the legal guarantees of individual rights	Directed questions and student answers
Week 13	2	Economic and social rights set out in the Constitution	Identifying the economic and social rights provided for in the Constitution	Directed questions and student answers
Week 14	2	National mechanisms for protecting human rights	Explaining the means of national protection of human rights	Directed questions and student answers
Week 15	2	The rule-of-law state and public authorities' respect for rights and freedoms	Clarifying the concept of the rule-of-law state and its relation to human rights	Directed questions and student answers
Week 16	2	The principle of the separation of powers	Clarifying the importance of separation of powers in protecting rights	Directed questions and student answers
Week 17	2	Independence of the judiciary	Clarifying the role of an independent judiciary in protecting human rights	Directed questions and student answers
Week 18	2	Citizenship and human rights	Linking the concept of citizenship to the protection of rights and duties	Directed questions and student answers
Week 19	2	The concept of international humanitarian law	Defining international humanitarian law and its aims	Directed questions and student answers
Week 20	2	The four Geneva Conventions	Learning about the Geneva Conventions and their role in protecting victims of armed conflict	Directed questions and student answers
Week 21	2	The basic principles of international humanitarian law	Interpreting the basic principles of international humanitarian law	Directed questions and student answers
Week 22	2	Common Article 3 of the Geneva Conventions	Clarifying the provisions of Article 3 on non-international conflicts	Directed questions and student answers
Week 23	2	Additional Protocol I of 1977	Explaining the provisions of the First Additional Protocol	Directed questions and student answers

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 24	2	Additional Protocol II of 1977	Explaining the provisions of the Second Additional Protocol	Directed questions and student answers
Week 25	2	The relationship between international humanitarian law and human-rights law	Comparing the two bodies of law and clarifying similarities and differences	Directed questions and student answers
Week 26	2	National mechanisms for implementing international humanitarian law	Clarifying the role of national institutions in implementing international humanitarian law	Directed questions and student answers
Week 27	2	The importance of separation of powers in consolidating democracy	Analysing the effect of separation of powers on strengthening democracy	Directed questions and student answers
Week 28	2	The three powers and mechanisms of mutual oversight	Distinguishing between the jurisdictions of the three powers and checks-and-balances mechanisms	Directed questions and student answers
Week 29	2	The concept of political parties and their types	Defining political parties and outlining their various types	Directed questions and student answers
Week 30	2	Party systems	Comparing different party systems (two-party, multi-party, dominant-party) and analysing their features	Directed questions and student answers

9. Course Assessment

Grade distribution out of 100: First semester 20% (daily exams 10, participation/activities 5, research/reports 5); Second semester 20% (same breakdown); Final examination 60%.

10. Learning and Teaching Resources

Required Texts	Democracy and Human Rights (course textbook)
Recommended Texts	Universal Declaration of Human Rights, United Nations, 1948 International Covenant on Civil and Political Rights, United Nations, 1966 International Covenant on Economic, Social and Cultural Rights, United Nations, 1966 The four Geneva Conventions, International Committee of the Red Cross, 1949 The two Additional Protocols to the Geneva Conventions, 1977 Constitution of the Republic of Iraq, 2005
Websites / Other	ICRC, Introduction to International Humanitarian Law UN Office of the High Commissioner for Human Rights, Human Rights: A Basic Handbook for Students International Human Rights Law (collective work) International Humanitarian Law (collective work by international-law specialists) Political Systems and Constitutional Law — reference on separation of powers and political parties Annual reports of the High Commission for Human Rights in Iraq Peer-reviewed journals specializing in human rights and international humanitarian law

Course Instructor: Asst. Prof. Dr. Hadi Khalif Kareem Al-Jubouri (khaleef.hadi@alfarabiuc.edu.iq)

Computers

1. Course Name	Computers
2. Course Code	Comp181
3. Semester / Year	Annual, 2025–2026
4. Date Prepared	21/1/2026
5. Available Attendance Forms	In-person and practical
6. Study Hours / Units (Total)	30 hours (30 weeks x 1 hour/week) — 2 units
7. Course Coordinator	Asst. Lecturer Niran Ammar Ismail Alwan (niran.ammar@alfarabiuc.edu.iq)

8. Course Objectives

- Qualify and train students to identify the basic components of a computer and understand how the different parts function.
- Enable students to master the basic skills of using a computer.
- Qualify and train students in using basic software and how it works.
- Help students solve various computer problems and benefit from those problems.
- Learn to use editing programs such as Word and PowerPoint, and to work with the various files related to those programs.

Teaching and Learning Strategies

- Lecture method.
- Discussion method.
- Inquiry method.
- Practical demonstration (through supporting explanatory videos for the lectures).

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Weeks 1–4	8	Computer basics	Knowing the basics of how a computer operates	In-person semester and daily exams
Weeks 5–14	20	Computer components, computer security, and software licensing	Defining computer components and how to protect the computer	In-person semester and daily exams
Weeks 15–16	4	Operating systems in use	Types of operating systems	In-person semester and daily exams
Weeks 17–23	14	Word program basics	Learning Word 2010	In-person semester and daily exams
Weeks 24–30	14	PowerPoint program basics	Learning PowerPoint 2010	In-person semester and daily exams

9. Course Assessment

36 marks — monthly written exams. 4 marks — daily preparation, daily oral exams and reports. 60 marks — final written examination.

10. Learning and Teaching Resources

Required Texts	None specified
Recommended Texts	Computer Basics and Its Applications (library reference)
Websites / Other	Microsoft Word 2010, Shirin Al-Asri Microsoft Excel 2010, Shirin Al-Asri https://books-library.net/free-167753289-download

Course Instructor: Asst. Lecturer Niran Ammar Ismail Alwan (niran.ammar@alfarabiuc.edu.iq)

General Biology

1. Course Name	General Biology
2. Course Code	Ch110
3. Semester / Year	2025–2026
4. Date Prepared	2025/9/20
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	2 theory hours/week
7. Course Coordinator	Lecturer Dr. Muhammad Jawad

8. Course Objectives

- Teach first-stage Chemistry Department students the fundamentals of the science of life (biology) and its relationship with chemistry, and the scientific developments that have occurred in this field, so as to enable them to teach this subject in the future, especially at the intermediate and secondary levels.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	1	Characteristics of life — respiration (including: 1. Ventilation, 2. Pulmonary exchange, 3. Tissue exchange, 4. Cellular respiration)	Knowledge	Weekly & monthly exams
Week 2	1	Characteristics of life — metabolism, excretion, growth, shape and size, adaptation and evolution, movement	Knowledge	Weekly & monthly exams
Week 3	1	Reproduction (sexual). Types of asexual reproduction: fission, budding, fragmentation, regeneration	Knowledge	Weekly & monthly exams
Week 4	1	Hormones. Classification by function: (1) hormones stimulating endocrine glands, (2) sex hormones, (3) synthetic hormones. Classification by chemical structure: (1) steroid hormones, (2) non-steroid hormones. Mode of action: (1) steroid hormones entering the cell, (2) binding	Knowledge	Weekly & monthly exams
Week 5	1	Hormones of the hypothalamus and pituitary gland	Knowledge	Weekly & monthly exams
Week 6	1	Examination	—	Weekly & monthly exams
Week 7	1	The adrenal (suprarenal) gland, the kidney, thyroxine function, and the thyroid gland	Knowledge	Weekly & monthly exams

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 8	1	The parathyroid gland; the pancreas (islets of Langerhans); insulin — function and diagram; on diabetes	Knowledge	Weekly & monthly exams
Week 9	1	Disorders of the biological clock	Knowledge	Weekly & monthly exams
Week 10	1	Carbohydrates and their types: monosaccharides, oligosaccharides, polysaccharides — examples: starch, cellulose, glycogen	Knowledge	Weekly & monthly exams
Week 11	1	End-of-semester examination	—	Weekly & monthly exams
Week 12	1	Proteins and their types: structural, storage, transport, enzymatic and regulatory proteins (hormones)	Knowledge	Weekly & monthly exams
Week 13	1	Nucleic acids — structure of the nucleic acid; its types	Knowledge	Weekly & monthly exams
Week 14	1	Nucleotides: I. Nitrogenous base — components of the nucleotide: 1. nitrogenous base, 2. five-carbon sugar, 3. phosphate group. II. Pyrimidines and purines; diagram of ribose and deoxyribose	Knowledge	Weekly & monthly exams
Week 15	1	Lipids — fatty acids, divided into saturated and unsaturated; fats; classification of simple and mixed triglycerides; definition of cholesterol	Knowledge	Weekly & monthly exams
Week 16	1	The hydrogenation of fats; triglycerides	Knowledge	Weekly & monthly exams
Week 17	1	Waxes — benefits of wax in cells	Knowledge	Weekly & monthly exams
Week 18	1	Bile salts	Knowledge	Weekly & monthly exams
Week 19	1	Vitamins; sex hormones and steroid hormones	Knowledge	Weekly & monthly exams
Week 20	1	Steroids such as cholesterol and bile salts	Knowledge	Weekly & monthly exams
Week 21	1	Compounds derived from cortisone	Knowledge	Weekly & monthly exams

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	"Fundamentals of Zoology" (Storer et al.), translated by Mahmoud Abdul Wahid Suleiman, Boulos Girgis (translators), Yahya Al-Saeed Al-Assy — Riyadh: Dar Al-Marikh, 1983 (745 pp.) "Fundamentals of Zoology", by Dr. Muhammad Ismail Muhammad, Dr. Halim Mikhail Bishay, Dr. Yahya Al-Saeed Al-Assy, Dr. Ali, Dr. Taghreed Abdul Rahman Hassan Sherqawi — 2nd ed., Dar Al-Fikr Al-Arabi (941 pp.)
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Course Instructor: Lecturer Dr. Muhammad Jawad

Chemical Safety and Security

1. Course Name	Chemical Safety and Security
2. Course Code	Ch112
3. Semester / Year	2025–2026
4. Date Prepared	20/1/2025
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	1 hour/week — 1 unit
7. Course Coordinator	Dr. Muhammad Jawad (muhammad.jawad@alfarabiuc.edu.iq)

8. Course Objectives

- Identify chemical hazards and classify them.
- Read and understand safety data sheets.
- Use personal protective equipment correctly.
- Develop a response plan for use in the event of a chemical accident.

Course Learning Outcomes

A — Knowledge and Understanding

- A1. Enabling the student to gain knowledge of chemical safety.
- A2. Introducing the student to occupational and laboratory hazards to the health of students and workers.
- A3. Enabling the student to prevent occupational hazards in laboratories and workshops.
- A4. Understanding the terms "chemical safety" and "chemical security".
- A5. Procedures required when setting up a chemical laboratory.
- A6. Preventive measures that must be available in chemical laboratories.
- A7. Student's knowledge of safety signs and their colours.
- A8. Student's knowledge of hazardous chemicals such as corrosive, oxidizing, explosive and incompatible substances.

B — Course-specific Skills

- B1. Master laboratory safety procedures.
- B2. Identify chemical hazards and classify them according to international standards.
- B3. Master the use of protective equipment.
- B4. Master how to act when a chemical spill occurs.
- B5. Prepare emergency and response plans for chemical accidents.
- B6. Promote a culture of chemical security to prevent misuse of, or unauthorized access to, hazardous materials.

C — Affective and Value-based Goals

- C1. Adopt a dialogue-based approach between student and instructor.
- C2. Prepare organized reports.

C3. Adopt a discussion-based approach.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	1	The chemical laboratory	Introduction to the chemical laboratory	Daily exam and oral questions
Week 2	1	Laboratory hazards	—	Daily exam and oral questions
Week 3	1	Learning safety procedures	—	Daily exam and oral questions
Week 4	1	Chemical safety	—	Daily exam and oral questions
Week 5	1	Chemical security	—	Daily exam and oral questions
Week 6	1	Examination	—	Daily exam and oral questions
Week 7	1	Specifications of the chemical laboratory	—	Daily exam and oral questions
Week 8	1	Basic safety equipment that must be available in the chemical laboratory	—	Daily exam and oral questions
Week 9	1	Personal protective equipment	—	Daily exam and oral questions
Week 10	1	General safety precautions required in laboratories	—	Daily exam and oral questions
Week 11	1	End-of-semester examination	—	Daily exam and oral questions
Week 12	1	Safety data sheets for chemicals	—	Daily exam and oral questions
Week 13	1	General safety guidance and instructions inside the laboratory	—	Daily exam and oral questions
Week 14	1	Safety signs	—	Daily exam and oral questions
Week 15	1	Safety precautions when storing and preserving chemicals	—	Daily exam and oral questions
Week 16	1	Storage of toxic substances	—	Daily exam and oral questions
Week 17	1	Storage of toxic substances (continued)	—	Daily exam and oral questions
Week 18	1	Examination	—	Daily exam and oral questions

9. Course Assessment

The grade (out of 100) is distributed according to the tasks assigned to the student: daily preparation, daily/oral/monthly/written examinations, reports, etc.

10. Learning and Teaching Resources

Required Texts	"Occupational Hazards and Means of Safety in Chemistry
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	Departments", College of Education for Pure Sciences Ibn Al-Haitham, University of Baghdad, Dr. Abdul Mohsen Abdul Hamid Al-Haidari, 2nd ed. "Safety Guide in Chemical Laboratories", Dr. Ali Abdullah Al-Zahrani, King Saud University, Kingdom of Saudi Arabia "Chemical Safety Guide in Educational Laboratories", Ministry of Education, Kingdom of Saudi Arabia "Chemical Safety and Security Guide in Educational and Research Institutions", Atomic Energy Authority "Occupational Safety and Health Management", Dr. Ibrahim Atef Jaballah, Dar Al-Fikr Al-Arabi
Websites / Other	World Health Organization (WHO) American Chemical Society (ACS)

Course Instructor: Dr. Muhammad Jawad (muhammad.jawad@alfarabiuc.edu.iq)

Foundations of Education

1. Course Name	Foundations of Education
2. Course Code	—
3. Semester / Year	Annual
4. Date Prepared	2025/10/1
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	1 hour/week — 2 units
7. Course Coordinator	Asst. Prof. Dr. Abbas Ramadan Ramih Abed

8. Course Objectives

- Introduce students to the importance of the foundations of education in the life of society.
- Introduce students to the ancient foundations of education, including the Chinese, Roman and Islamic foundations.
- Apply the sound educational foundations that students learn in their daily life.
- Identify correct educational applications in order to make use of them in everyday life.

Teaching and Learning Strategies

- Dialogue and discussion.
- Problem-solving.
- Cooperative learning.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	The meaning of education, its goals and its necessity	—	Directed questions and student answers
Week 2	2	Its theories and its fields	—	Directed questions and student answers
Week 3	2	The historical foundation of education	—	Directed questions and student answers
Week 4	2	Ancient education	—	Directed questions and student answers
Week 5	2	Chinese education	—	Directed questions and student answers
Week 6	2	Greek education	—	Directed questions and student answers
Week 7	2	Education in the Middle Ages	—	Directed questions and student answers
Week 8	2	Arab education before and after Islam	—	Directed questions and student answers
Week 9	2	Modern education	—	Directed questions and student answers
Week 10	2	The relationship between education and society	Social foundation of education	Directed questions and student answers
Week 11	2	The relationship between	Social foundation of	Directed questions and

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
		the individual and the environment	education	student answers
Week 12	2	Moral education	Social foundation of education	Directed questions and student answers
Week 13	2	Family education	Social foundation of education	Directed questions and student answers
Week 14	2	National education	Social foundation of education	Directed questions and student answers
Week 15	2	Health education	Social foundation of education	Directed questions and student answers
Week 16	2	Education and its impact on economic development	Economic foundation of education	Directed questions and student answers
Week 17	2	Exploitation of natural resources	Economic foundation of education	Directed questions and student answers
Week 18	2	Education and methodology in research	Scientific foundation of education	Directed questions and student answers
Week 19	2	National and social foundations	—	Directed questions and student answers
Week 20	2	Education in the Islamic perspective	—	Directed questions and student answers
Week 21	2	The comprehensive school	Educational renewal in Iraq	Directed questions and student answers
Week 22	2	Curricular education	Educational renewal in Iraq	Directed questions and student answers
Week 23	2	Schools for gifted students; acceleration	Educational renewal in Iraq	Directed questions and student answers
Week 24	2	The individual's acceptance of the primitive environment, and how education wove itself into it	Primitive education	Directed questions and student answers
Week 25	2	The individual having a specific social need	Social education	Directed questions and student answers
Week 26	2	Establishing harmony between civilizations	Education through history	Directed questions and student answers
Week 27	2	The meaning of conformity and consistency in thought and action as dictated by our religion	Islamic education	Directed questions and student answers
Week 28	2	The meaning of social control, including positive control	Social control	Directed questions and student answers
Week 29	2	The practices we carry out throughout our lives, whether brief or extended	Culture and education	Directed questions and student answers
Week 30	2	The individual having a specific social need	Social education	Directed questions and student answers

9. Course Assessment

Grade distribution out of 100: First semester 20% (daily exams 10, participation/activities 5, research/reports 5); Second semester 20% (same breakdown); Final examination 60%.

10. Learning and Teaching Resources

Required Texts	Foundations of Education (course textbook)
Recommended Texts	"The Family in Islam", Ayatollah Al-Sayyid Al-Shaheed Muhammad Al-Sadr, Al-Sayyid Al-Shaheed Al-Sadr Heritage Foundation, Dar Maktabat Al-Basa'ir, 2010 "Introduction to the Philosophy of Education", translated by Muhammad Seif Al-Din Fahmi, Anglo-Egyptian Library, Cairo, 1982 "The Philosophy of Islamic Education in the Noble Hadith", by Bakr Abdul Gawad Sayed, Dar Al-Fikr Al-Arabi, Cairo, 1983
Websites / Other	Dr. Mahmoud Al-Sayed, "Studies in Education and Society", Al-Nadim, Cairo, 1988 (supporting reference)

Course Instructor: Asst. Prof. Dr. Abbas Ramadan Ramih Abed

Educational Psychology

1. Course Name	Educational Psychology
2. Course Code	—
3. Semester / Year	Annual
4. Date Prepared	2025/10/1
5. Available Attendance Forms	Daily
6. Study Hours / Units (Total)	2 hours/week — 4 units
7. Course Coordinator	Muhammad Saoud Sagheer

8. Course Objectives

- The student learns the concept of educational psychology and its areas of interest and study.
- The student learns the meaning of educational objectives, their classification, and how they are converted into instructional objectives.
- The student grasps the meaning of memory, its nature, and its role in teaching.
- The student learns the importance of motivation in the field of educational psychology.
- The student learns the meaning of transfer of learning and its educational applications.
- The student grasps the meaning of concepts and their relation to scientific and creative thinking.
- The student learns the meaning of feedback, its types, and its importance for the teacher.
- The student learns theories of learning and their educational applications.
- The student grasps the factors influencing learning.
- The student learns about skills and habits, how they are acquired, and how to benefit from them in learning.

Teaching and Learning Strategies

- Discussion.
- Problem-solving.
- Cooperative learning.

Course Structure (Weekly Schedule)

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Week 1	2	Educational psychology and its development	—	
Weeks 2–4	2	Educational objectives	Enabling the student to formulate behavioural objectives and phrase a question that achieves the objective	
Week 5	—	First examination of the first semester	—	
Weeks 6–7	2	Memory: its theories and its role in teaching	Knowledge of memory and its theories	
Weeks 8–9	2	Forgetting and its theories	—	

Week	Hrs	Topic / Unit	Learning Outcomes	Evaluation
Weeks 10–11	2	Transfer of learning	—	
Week 12	—	Second examination of the first semester	—	
Weeks 13–15	2	Motivation	The role of motivation in the learning process	
Weeks 16–18	2	Concepts and their relation to scientific and creative thinking	—	
Weeks 19–20	2	Feedback	—	
Week 21	—	First examination of the second semester	—	
Weeks 22–24	2	Theories of learning	—	
Weeks 25–26	2	Factors influencing learning	—	
Weeks 27–28	2	Individual differences and their effect on learning	—	
Week 29	—	Second examination of the second semester	—	
Week 30	2	Mental health	—	

9. Course Assessment

Grade distribution out of 100: First semester 20% (daily exams 10, participation/activities 5, research/reports 5); Second semester 20% (same breakdown); Final examination 60%.

10. Learning and Teaching Resources

Required Texts	Educational Psychology (course textbook)
Recommended Texts	Cognitive Psychology Psychology of Individual Differences

Course Instructor: Muhammad Saoud Sagheer