

**Faculty of Medicine**  
**Department of Dentistry**  
**First-year courses**  
**Academic Year 2025/2026**  
**Chemistry Course Program**



Annual Module

Coefficient 3

**Location: A1 amphitheater**

Theoretical teaching hours/year: 45 hours

Tutorial hours/year: 30 hours

**SEMESTER 01: From 28/09/25 to 18/01/26**

**Course Outline**

**Chemistry I (General and Mineral Chemistry)**

	<b>Structure of Matter</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to understand the composition of the atom by identifying its main constituents, to comprehend the internal structure of the atom—including the nucleus and the electronic configuration—as well as the associated radiation phenomena, and to understand the properties and reactions of elements based on their classification in the periodic table, with a particular focus on their periodic behavior.	
<b>Session 1</b>	<b>1. The constituents of the atom</b>	<b>28/09/25</b>
<b>Session 2</b>	<b>2. The nucleus and radiation - anatomical structure of the atom</b>	<b>05/10/25</b>
<b>Session 3</b>	2.1 Rutherford's experiment	<b>12/10/25</b>
	2.2 Bohr's atom and energy quantification	
<b>Session 4</b>	2.3 The atom in wave mechanics, electronic structure of the elements	<b>19/10/25</b>
<b>Session 5</b>	<b>3. Periodicity of the physicochemical properties of the elements</b>	<b>26/10/25</b>
	3.1 Ionization potential	
	3.2 Electronic affinities	<b>02/11/25</b>
<b>Session 6</b>	3.3 Study of some families: alkali, alkaline earth, halogen, nitrogen and oxygen families	

	<b>Chemical Bonds</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to understand the nature and role of the various chemical bonds in the formation of molecules, and to be able to analyze and distinguish between the different types of chemical bonds.	
<b>Session 7</b>	<b>1. Theory of Chemical Bonding</b> <b>2. Different Types of Chemical Bonds</b>	<b>09/11/25</b>
	2.1 Localized Bonds	
<b>Session 8</b>	a. Covalent Bond b. Polar Bond c. Ionic Bond	<b>16/11/25</b>
<b>Session 9</b>	2.2 Delocalized Bonds a. Conjugated Molecules b. Metallic Bonds	<b>23/11/25</b>

	<b>The States of Matter</b>	<b>Date</b>
<b>Objectives</b>	The objective is to understand the diversity of the states of matter and their fundamental characteristics, by distinguishing their structural and physical properties according to whether they are disordered or ordered.	
<b>Session 10</b>	<b>1. Disordered State</b> 1.1. Ideal and Real Gases 1.2. Liquids 1.3. Amorphous Solids	23/11/25
<b>Session 11</b>	<b>2. Ordered State</b> 2.1. Molecular Crystals 2.2. Covalent Crystals and Macromolecules 2.3. Ionic Crystals 2.4. Metallic Crystals	30/11/25

	<b>Chemical Thermodynamics</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to describe the evolution and energy exchanges of a system undergoing a chemical reaction, to define the standard internal energy, standard enthalpy, standard entropy, and standard Gibbs free energy of reaction, to understand the influence of temperature on these thermodynamic quantities, and to be able to predict the evolution of a chemical equilibrium.	
<b>Session 12</b>	<b>1. Review of general thermodynamics, the concept of systems and state functions</b>	07/12/25
<b>Session 13</b>	<b>2. First law of thermodynamics</b>	14/12/25
<b>Session 14</b>	2.1. Enthalpy and specific heat 2.2. Standard enthalpy, enthalpy of formation	04/01/26
<b>Session 15</b>	<b>3. Second and third law of thermodynamics</b> 3.1. Reversible and irreversible processes 3.2. Entropy and variation of entropy with temperature and pressure	11/01/26

**SEMESTER 02: From 01/02/26 to 24/05/26**

**Course Outline**

**Continued: Chemistry I (General and Mineral Chemistry)**

**+ Chemistry II (Organic Chemistry)**

	<b>Solution chemistry</b>	<b>Date</b>
<b>Objectives</b>	The objective is to provide the foundational knowledge necessary for understanding reactions in aqueous solution, with particular emphasis on acid-base reactions and redox (oxidation-reduction) reactions.	
<b>Session 1</b>	<b>1. Acid-Base Equilibrium</b>  <b>2. Redox Equilibrium</b>  2.1. Oxidation Number  2.2. Redox Reaction  2.3. Electrode Potential	01/02/26
<b>Session 2</b>		08/02/26
<b>Session 3</b>		15/02/26
<b>Session 4</b>		22/02/26
	<b>3. Physicochemical Equilibrium</b>  3.1. Phase Rule and Variance  3.2. Change of State of a Pure Substance	

	<b>Chemical Kinetics</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to understand how to define and determine the rate of a chemical reaction and the order of a chemical reaction. To understand how to express and integrate the corresponding rate law for simple reaction orders. To understand how to apply the Arrhenius equation.	
<b>Session 5</b>	<b>1. Formal kinetics</b>  1.1. Rate equation, rate constant, activation energy  1.2. Simple and complex reaction mechanisms	01/03/26
<b>Session 6</b>		08/03/26
<b>Session 7</b>		15/03/26
	<b>2. Reaction mechanisms</b>  <b>3. Catalysis</b>	

	<b>Organic Functions</b>	<b>Date</b>
<b>Objectives</b>	To be able to name a molecule and represent its structure from its name or, conversely, to determine the name of a molecule from its structural representation.	
<b>Session 8</b>	<b>Definitions and general concepts</b> <b>Nomenclature</b> 1- General principles	05/04/26
<b>Session 9</b>	2- Nomenclature of alkanes, alkenes, alkynes, and benzene compounds 3- Nomenclature of organic functional groups (compounds with single and multiple functional groups)	12/04/26

	<b>Stereochemistry and Isomerism</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to represent the geometry of molecules according to accepted conventions in a manner understandable to all. To understand that the atoms constituting a molecule can be assembled in different ways (isomerism) and that if they are connected in the same sequence, they can still have different geometric arrangements (stereoisomerism).	
<b>Session 10</b>	<b>1. Representations</b>	19/04/26
<b>Session 11</b>	Cavalier perspective, Cram's convention, Newman projection, Fischer projection. <b>2. Energy diagram</b> <b>3. Chirality and configuration of organic molecules</b> Configuration of the asymmetric carbon atom, Cis-trans and Z-E stereoisomerism, Diastereomerism.	26/04/26
<b>Session 12</b>	<b>Structure and reactivity</b>	03/05/26

	<b>Organic Chemistry Reactions</b>	<b>Date</b>
<b>Objectives</b>	The objectives are to determine the category of a reaction (substitution, addition, elimination) by examining the nature of the reactants and the products.	
<b>Session 13</b>	<b>1. Addition</b> <b>2. Nucleophilic substitution</b>	10/05/26
<b>Session 14</b>	<b>3. Elimination</b> <b>4. Electrophilic substitution</b>	17/05/26
<b>Session 15</b>	<b>Introduction to Organic Synthesis</b>	24/05/26

**Department:** Dentistry

**Level:** First Year    **Section:** 1

**Module:** Chemistry    **Day and Time:** Sunday at 8:30 AM.

**Module Coordinator:** Kumar Djamal Belaid

**First Semester**

**From 28/09/25 to 18/01/26**

<b>Date</b>	<b>Course Title</b>	<b>Instructor</b>
28/09/25	Structure of matter – Session 1	Kumar Djamal Belaid
05/10/25	Structure of matter – Session 2	Kumar Djamal Belaid
12/10/25	Structure of matter – Session 3	Kumar Djamal Belaid
19/10/25	Structure of matter – Session 4	Kumar Djamal Belaid
26/10/25	Structure of matter – Session 5	Kumar Djamal Belaid
02/11/25	Structure of matter – Session 6	Kumar Djamal Belaid
09/11/25	Chemical bonds – Session 7	Kumar Djamal Belaid
16/11/25	Chemical bonds – Session 8	Kumar Djamal Belaid
23/11/25	Chemical bonds – Session 9	Kumar Djamal Belaid
23/11/25	States of matter – Session 10	Kumar Djamal Belaid
30/11/25	States of matter – Session 11	Kumar Djamal Belaid
07/12/25	Chemical thermodynamics – Session 12	Kumar Djamal Belaid
14/12/25	Chemical thermodynamics – Session 13	Kumar Djamal Belaid
04/01/26	Chemical thermodynamics – Session 14	Kumar Djamal Belaid
11/01/26	Chemical thermodynamics – Session 15	Kumar Djamal Belaid

**Department:** Dentistry

**Level:** First Year    **Section:** 1

**Module Tutorial Plan:** Chemistry

**First Semester**

**From 28/09/25 to 18/01/26**

Date	Heure	Groupe	Intitulé du TD	Enseignant
12/10/25	13h30-15h00	1	Structure of matter	Kumar Djamal Belaid
12/10/25	15h00-16h30	2	Structure of matter	Kumar Djamal Belaid
13/10/25	13h30-15h00	3	Structure of matter	Kumar Djamal Belaid
13/10/25	15h00-16h30	4	Structure of matter	Kumar Djamal Belaid
19/10/25	13h30-15h00	5	Structure of matter	Kumar Djamal Belaid
19/10/25	15h00-16h30	6	Structure of matter	Kumar Djamal Belaid
20/10/25	13h30-15h00	7	Structure of matter	Kumar Djamal Belaid
20/10/25	15h00-16h30	8	Structure of matter	Kumar Djamal Belaid
26/10/25	13h30-15h00	1	Chemical bonds	Kumar Djamal Belaid
26/10/25	15h00-16h30	2	Chemical bonds	Kumar Djamal Belaid
27/10/25	13h30-15h00	3	Chemical bonds	Kumar Djamal Belaid
27/10/25	15h00-16h30	4	Chemical bonds	Kumar Djamal Belaid
02/11/25	13h30-15h00	5	Chemical bonds	Kumar Djamal Belaid
02/11/25	15h00-16h30	6	Chemical bonds	Kumar Djamal Belaid
03/11/25	13h30-15h00	7	Chemical bonds	Kumar Djamal Belaid
03/11/25	15h00-16h30	8	Chemical bonds	Kumar Djamal Belaid
09/11/25	13h30-15h00	1	States of matter	Kumar Djamal Belaid
09/11/25	15h00-16h30	2	States of matter	Kumar Djamal Belaid
10/11/25	13h30-15h00	3	States of matter	Kumar Djamal Belaid
10/11/25	15h00-16h30	4	States of matter	Kumar Djamal Belaid
16/11/25	13h30-15h00	5	States of matter	Kumar Djamal Belaid
16/11/25	15h00-16h30	6	States of matter	Kumar Djamal Belaid
17/11/25	13h30-15h00	7	States of matter	Kumar Djamal Belaid
17/11/25	15h00-16h30	8	States of matter	Kumar Djamal Belaid
23/11/25	13h30-15h00	1	Chemical thermodynamics	Kumar Djamal Belaid
23/11/25	15h00-16h30	2	Chemical thermodynamics	Kumar Djamal Belaid
24/11/25	13h30-15h00	3	Chemical thermodynamics	Kumar Djamal Belaid
24/11/25	15h00-16h30	4	Chemical thermodynamics	Kumar Djamal Belaid
30/11/25	13h30-15h00	5	Chemical thermodynamics	Kumar Djamal Belaid
30/11/25	15h00-16h30	6	Chemical thermodynamics	Kumar Djamal Belaid
01/12/25	13h30-15h00	7	Chemical thermodynamics	Kumar Djamal Belaid
01/12/25	15h00-16h30	8	Chemical thermodynamics	Kumar Djamal Belaid
07/12/25	13h30-15h00	1	Solution chemistry	Kumar Djamal Belaid
07/12/25	15h00-16h30	2	Solution chemistry	Kumar Djamal Belaid
08/12/25	13h30-15h00	3	Solution chemistry	Kumar Djamal Belaid
08/12/25	15h00-16h30	4	Solution chemistry	Kumar Djamal Belaid
14/12/25	13h30-15h00	5	Solution chemistry	Kumar Djamal Belaid
14/12/25	15h00-16h30	6	Solution chemistry	Kumar Djamal Belaid
15/12/25	13h30-15h00	7	Solution chemistry	Kumar Djamal Belaid
15/12/25	15h00-16h30	8	Solution chemistry	Kumar Djamal Belaid



**Department:** Dentistry

**Level:** First Year    **Section:** 1

**Schedule of Laboratory Sessions:** Chemistry

**First Semester**

**From 28/09/25 to 18/01/26**

Date	Heure	Groupe	Intitulé du TP	Enseignant
23/10/25	13h30-15h00	1	Introduction to practical chemistry	K.D. Belaid
23/10/25	15h00-16h30	2	Introduction to practical chemistry	K.D. Belaid
30/10/25	13h30-15h00	3	Introduction to practical chemistry	K.D. Belaid
30/10/25	15h00-16h30	4	Introduction to practical chemistry	K.D. Belaid
06/11/25	13h30-15h00	5	Introduction to practical chemistry	K.D. Belaid
06/11/25	15h00-16h30	6	Introduction to practical chemistry	K.D. Belaid
13/11/25	13h30-15h00	7	Introduction to practical chemistry	K.D. Belaid
13/11/25	15h00-16h30	8	Introduction to practical chemistry	K.D. Belaid
20/11/25	13h30-15h00	1	Preparation of Solutions	K.D. Belaid
20/11/25	15h00-16h30	2	Preparation of Solutions	K.D. Belaid
27/11/25	13h30-15h00	3	Preparation of Solutions	K.D. Belaid
27/11/25	15h00-16h30	4	Preparation of Solutions	K.D. Belaid
04/12/25	13h30-15h00	5	Preparation of Solutions	K.D. Belaid
04/12/25	15h00-16h30	6	Preparation of Solutions	K.D. Belaid
11/12/25	13h30-15h00	7	Preparation of Solutions	K.D. Belaid
11/12/25	15h00-16h30	8	Preparation of Solutions	K.D. Belaid
08/01/26	13h30-15h00	1	Qualitative Analysis of Chemical Species	K.D. Belaid
08/01/26	15h00-16h30	2	Qualitative Analysis of Chemical Species	K.D. Belaid
15/01/26	13h30-15h00	3	Qualitative Analysis of Chemical Species	K.D. Belaid
15/01/26	15h00-16h30	4	Qualitative Analysis of Chemical Species	K.D. Belaid
05/02/26	13h30-15h00	5	Qualitative Analysis of Chemical Species	K.D. Belaid
05/02/26	15h00-16h30	6	Qualitative Analysis of Chemical Species	K.D. Belaid
12/02/26	13h30-15h00	7	Qualitative Analysis of Chemical Species	K.D. Belaid
12/02/26	15h00-16h30	8	Qualitative Analysis of Chemical Species	K.D. Belaid