Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation

Academic Program Specification Form For The Academic

University: Al-Nahrain
College: Medicine
Department: Chemistry and Biochemistry
Date of Form completion: 13 / 9 /2021

Dean's Name

Date : / /

Signature

Dean's Assistant For Scientific Affairs

Date : / /
Signature

Prof. Dr.Rayah S. Baban
Head of Department
Date : / /
Signature

Quality Assurance And University Performance Manager
Date : / /
Signature

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

2nd Year Molecular Biology

(CHMMol-22) Second Semester

COURSE SPECIFICATION

Molecular biology is a one- semester course designed to introduce students to the role of biological molecules in determining cellular function. Topics covered include a description of the structure and function of nucleic acids; the genetic code; protein biosynthesis and targeting; DNA replication and repair; recombinant DNA technology and genetic engineering; gene expression and its control; and signal transduction. Special topics include cell cycle regulation, apoptosis, and cancer. The format in the class is a combination of traditional lecture and problem- based learning.

1. Teaching Institution	Ministry of higher education
2. University Department/Centre	College of medicine – Al-Nahrain University – department of Chemistry and Biochemistry
3. Course title/code	Molecular Biology / (CHMMol-22)
4. Programme(s) to which it contributes	Medical teaching
5. Modes of Attendance offered	Courses for undergraduate students
6. Semester/Year	second semester – second year
7. Number of hours tuition (total)	٣٠
8. Date of production/revision of this specification	2021
9. Aims of the Course	
The students will: • Acquire a familiarity with the nomenclature and vocabulary of molecular biology.	

- Understand the molecular basis of inherited diseases.
- Be able to apply the principles of molecular biology in disease diagnosis (AIDS, TB,…….).
- Appreciate the role of gene therapy in the treatment of inherited diseases.
- Understand how PCR has led to the development of forensic medicine.
- Be able to keep up with the information explosion in this field and appreciate the ongoing nature of research and the need for flexibility and modification of scientific knowledge.

10· Learning Outcomes, Teaching ,Learning and Assessment Method
Knowledge and Understanding -A A1.90-100 A2.89-80 A3.79-60 A4.59-50 A5. 49-40 A6 .below 40
B. Subject-specific skills B1. Molecular biology skills are abilities that can help you succeed in a variety of scientific careers. B2. B3.
Teaching and Learning Methods
1.theory – 2 hours (2 credits). 2.practical – 2 hours (1 credits).
Assessment methods
1.mid- and final theory examination. 2.mid- and final practical examination.
C. Thinking Skills C1.tetorials. C2.quizes. C3. C4.
Teaching and Learning Methods
See above

Assessment methods
See above

D. General and Transferable Skills (other skills relevant to employability and personal development) D1.not included in the course. D2. D3. D4.

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. not included in the course D2. D3. D4.
Teaching and Learning Methods
LECTURE METHOD INTERACTIVE/PARTICIPATIVE METHODS.
Assessment Methods
See above

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method

1.	2		**DNA and RNA**	Theory and practical	Theory and practical examination
2.	2		**Flow of genetic information**	Theory and practical	Theory and practical examination
3.	٥		**Exploring genes (+ Recombinant DNA technology)**	Theory and practical	Theory and practical examination
4.	٣		**DNA replication and repair**	Theory and practical	Theory and practical examination
5.	٢		**Gene rearrangement**	Theory and practical	Theory and practical examination
٦	٢		**RNA synthesis and splicing**	Theory and practical	Theory and practical examination
٧	٣		**Protein synthesis**	Theory and practical	Theory and practical examination
٨	٢		**Protein targeting**	Theory and practical	Theory and practical examination
٩	٢		**Control of gene expression in prokaryotes**	Theory and practical	Theory and practical examination
١٠	٣		**Eucaryotic chromosomes and gene expression**	Theory and practical	Theory and practical examination
١١	٤		**Nucleotides**	Theory and practical	Theory and practical examination

12. Infrastructure Lecture room. Biochemistry lab.	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Biochemistry Ninth Edition| Lubert Stryer; Jeremy Berg; John Tymoczko; Gregory Gatto
Special requirements (include for example workshops, periodicals, IT software, websites)	Many soft wares and websites
Community-based facilities (include for example, guest Lectures , internship , field studies)	Not included

13. Admissions	
Pre-requisites	Not needed
Minimum number of students	100
Maximum number of students	324

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TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

2nd Year Clinical Biochemistry

(CHMBio-22) Second Semester

COURSE SPECIFICATION

To have some experience in biochemical techniques in order to appreciate the practical problem of clinical biochemistry as a diagnostic tool and to improve the problem- solving skills through collaborative and individual reflection and analysis.

1. Teaching Institution	Ministry of higher education
2. University Department/Centre	College of medicine – Al-Nahrain University – department of Chemistry and Biochemistry
3. Course title/code	**(CHMBio-22)** Clinical Biochemistry
4. Programme(s) to which it contributes	Medical teaching
5. Modes of Attendance offered	Courses for undergraduate students
6. Semester/Year	2nd semester – second year
7. Number of hours tuition (total)	45
8. Date of production/revision of this specification	2021
9. Aims of the Course	
The program involves: changes during different disease states and general consequences. There is a stress on the: • Abnormal metabolism of macromolecules and pathological changes in the function of liver, kidney, different hormones with the clinical interpretation of laboratory findings.	

- Use of enzymes in clinical diagnosis and prognosis, isoenzymes, their clinical significance.
- Porphyrin metabolism, and disorders, haemoglobinopathies, disorders of iron metabolism and significance of related laboratory tests.
- Cancer chemistry and tumor markers and their importance in clinical diagnosis and prognosis.

10· Learning Outcomes, Teaching ,Learning and Assessment Method

Knowledge and Understanding -A

A1.90-100

A2.89-80

A3.79-60

A4.59-50

A5. 49-40

A6 .below 40

B. Subject-specific skills

B1. teaching on variable equipment and instruments

B2.

B3.

Teaching and Learning Methods

1.theory – 2 hours (2 credits).
2.practical – 3 hours (1.5 credits).

Assessment methods

1.mid- and final theory examination.
2.mid- and final practical examination.

C. Thinking Skills

C1.tetorials.

C2.quizes.

C3.
C4.

Teaching and Learning Methods

See above

Assessment methods

See above

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1.not included in the course.
D2.
D3.
D4.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. not included in the course
D2.
D3.
D4.

Teaching and Learning Methods

LECTURE METHOD
INTERACTIVE/PARTICIPATIVE METHODS.

Assessment Methods

See above

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1.	٨		Renal function tests	Theory and practical	Theory and practical examination
2.	٣		Acid base balance	Theory and practical	Theory and practical examination
3.	٣		Water electrolytes	Theory and practical	Theory and practical examination
4.	٦		Amino acids and protein metabolism disorders	Theory and practical	Theory and practical examination
5.	٨		Lipid metabolism disorders	Theory and practical	Theory and practical examination
٦	٤		Tumor markers	Theory and practical	Theory and practical examination
٧	٥		Iron and porphyria	Theory and practical	Theory and practical examination
٨	٨		Liver function tests	Theory and practical	Theory and practical examination

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Clinical Biochemistry and Metabolic Medicine/ 8th Edition By Martin Andrew Crook
Special requirements (include for example workshops, periodicals, IT software, websites)	Many soft wares and websites
Community-based facilities (include for example, guest Lectures , internship , field studies)	Not included

13. Admissions	
Pre-requisites	Not needed
Minimum number of students	100

Maximum number of students	324

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Quality Assurance And University Performance Manager
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TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	College of Medicine/ Al-Nahrain University
2. University Department/Centre	Department of Chemistry and Biochemistry
3. Programme Title	CHMMed-11 (Medical Chemistry)
4. Semester/Year	First semester – First year
5. Modes of Attendance offered	1st Year Medical students
6. Number of hours tuition (total)	45
7. Programme(s) to which it contributes	Medical teaching
8. Date of production/revision of this specification	2021
9. Aims of the Programme	
The primary goal of this course in general medical chemistry is to present the fundamental principles and chemical foundation essential to understanding physiological chemistry for students of medicine. Throughout the course, chemistry is presented as an experimental science with biomedical examples in which theories evolve and change as new information is acquired to show how this vast science is applied to areas of interest to the medical students.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1.90-100 A2.80-89 A3.60-79 A4.50-59 A5.40-49 A6.below 40
B. Subject-specific skills B1.teaching on variable equipment and instruments B2. B3.
Teaching and Learning Methods
Theory 3 credits Practical 1.5 credits (Total credits =4)
Assessment methods
Mid-Term and Final Theory Examination Mid-Term and Final Practical Examination
C. Thinking Skills C1. tutorials C2.quizes C3. C4.
Teaching and Learning Methods See above
Assessment methods
See above

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. not included in the course
D2.
D3.
D4.

Teaching and Learning Methods

Assessment Methods

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1.	3		**Radioactivity, radiation dosages medical uses of radioactive isotopes**	Theory and practical	Theory and practical examination
2.	3		**Gases & their medical relations and diffusion of respiratory gases**	Theory and practical	Theory and practical examination
3.	3		**Aqueous solutions, solubility, concentrations of solutions. Electrolytes & nonelectrolytes**	Theory and practical	Theory and practical examination
4.	3		**Osmosis & osmotic pressure**	Theory and practical	Theory and practical examination
5.	3		**Colloids and their properties,**	Theory and practical	Theory and practical examination

			emulsions, emulsifying agents, dialysis, haemodialysis.		
6.	3		**Acid and Bases, pH buffer acid-base balance in blood.**	Theory and practical	Theory and practical examination
7.	3		**Reaction rate, activation energy chemical equilibrium.**	Theory and practical	Theory and practical examination
8.	3		**Organic Chemistry: hyberdization, double & triple bonds, resonance. Alkanes**	Theory and practical	Theory and practical examination
9.	3		**Alkenes: geometric isomers, importance in living systems**	Theory and practical	Theory and practical examination
10	3		**Aromatic compounds.**	Theory and practical	Theory and practical examination
11.	3		**Stereoisomers: Chiral compounds, optical activity diastereomers, mesostereoisomers.**	Theory and practical	Theory and practical examination
12.	3		**Alcohols: phenols, ethers, thiols.**	Theory and practical	Theory and practical examination
13.	3		**Aldehydes & Ketones**	Theory and practical	Theory and practical examination
14.	3		**Carboxylic acids: Esters & thioesters.**	Theory and practical	Theory and practical examination
15	3		**overview**	Theory and practical	Theory and practical examination

12. Personal Development Planning
Lecture rooms Chemistry laboratories

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	**The chemical basis of life +Organic Chemistry: A short course Essential:** **General , Organic, and Biological Chemistry for Health Science**
Special requirements (include for example workshops, periodicals, IT software, websites)	Many soft wares and websites
Community-based facilities (include for example, guest Lectures , internship , field studies)	Not included

13. Admission criteria.

Pre-requisites	Not needed
Minimum number of students	100
Maximum number of students	365

1st Year Biochemistry- Second semester

1. Teaching Institution	College of Medicine/ Al-Nahrain University
2. University Department/Centre	Department of Chemistry and Biochemistry
3. Programme Title	CHMBio-12 (1st Year Biochemistry)
4. Semester/Year	Second semester – First year
5. Modes of Attendance offered	1st Year Medical students
6. Number of hours tuition (total)	45
7. Programme(s) to which it contributes	Medical teaching
8. Date of production/revision of this specification	2021
9. Aims of the Programme	
Biochemistry I, an introduction to the structure and function of biological molecules, is designed to study the molecules and macromolecules in living systems through an application of the principles of organic and physical chemistry. This will include an examination of the structure of and function of proteins, carbohydrates, lipids, hormones, trace elements in detail in order to understand how their unique chemical and physical properties contribute to their biological function. The structures, specificities and kinetics of selected enzymes will illustrate the enormous diversity of this group of catalytic molecules.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1.90-100 A2.80-89 A3.60-79 A4.50-59 A5.40-49 A6.below 40
B. Subject-specific skills B1.teaching on variable equipment and instruments B2. B3.
Teaching and Learning Methods
Theory 3 credits Practical 1.5 credits (Total credits =4)
Assessment methods
Mid-Term and Final Theory Examination Mid-Term and Final Practical Examination
C. Thinking Skills C1. tutorials C2.quizes C3. C4.
Teaching and Learning Methods See above
Assessment methods
See above

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. not included in the course
D2.
D3.
D4.

Teaching and Learning Methods

Assessment Methods

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1.	3		**Carbohydrate chemistry: Definition, classification, biological roles.** **Monosaccharides, disaccharides, polysaccharides.**	Theory and practical	Theory and practical examination
2.	3		**Carbohydrate chemistry: Mucopolysaccharides & glycoproteins.**	Theory and practical	Theory and practical examination
3.	3		**Lipids: Definition & classification.** **Fatty acids, prostaglandins**	Theory and practical	Theory and practical examination
4.	3		**Lipids: Glycolipids,**	Theory and practical	Theory and practical examination

			sphingolipids & lipoproteins		
5.	3		**Amino acid chemistry:Definition, classification, properties, & reactions**.	Theory and practical	Theory and practical examination
6.	3		**Protein: Structure, conformation & denaturation**. **Peptide bond, glutathione, insulin & glucagons**	Theory and practical	Theory and practical examination
7.	3		**Protein:Functional role: Hb, glycoprotein, .collagen** .**Protein technology**	Theory and practical	Theory and practical examination
8.	3		**Enzymes: Nature, nomenclature, & classifications & types of kinetic reactions** . **Mechanism of action, factors affecting enzyme activity, & control of activity**.	Theory and practical	Theory and practical examination
9.	3		**Enzymes in diagnosis & therapy Definition, classification, chemistry & functions**	Theory and practical	Theory and practical examination
10	3		**Hormones: Definition, classification, chemistry& functions**	Theory and practical	Theory and practical examination
11.	3		**Nutrition: and trace elements**	Theory and practical	Theory and practical examination
12.	3		**Nutrition: Caloric values of food, basal metabolism, & nitrogen balance**. **Protein energy**	Theory and practical	Theory and practical examination

			malnutrition		
13.	3		**Vitamins (1): Definition, classification.** **Individual vitamin, chemistry, RDA & deficiencies**	Theory and practical	Theory and practical examination
14.	3		**Vitamins (2): Definition, classification.** **Individual vitamin, chemistry, RDA & deficiencies**	Theory and practical	Theory and practical examination
15	3		**overview**	Theory and practical	Theory and practical examination

12. Personal Development Planning	
Lecture rooms Chemistry laboratories	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	**Biochemistry. Lippincott's Illustrated Reviews** **Pamela C. Champe, Richard A. Harvey and Denise R. Ferrier**
Special requirements (include for example workshops, periodicals, IT software, websites)	Many soft wares and websites
Community-based facilities (include for example, guest Lectures , internship , field studies)	Not included

13. Admission criteria.	
Pre-requisites	Not needed

Minimum number of students	100
Maximum number of students	365

Curriculum Skills Map																	
please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																	
				Programme Learning Outcomes													
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**	**D4**