

## Academic Program Description Form

University Name: Tikrit University

Faculty/Institute: College of Medicine

Scientific Department: chemistry and Biochemistry

Academic or Professional Program Name: Bachelor of Medicine and General Surgery

Final Certificate Name: Bachelor of Medicine and General Surgery

Academic System: yearly system

Description Preparation Date: 15/9/2025

File Completion Date: 15/9/2025



Signature:

Head of Department Name:

Intithar Rifaat Sarhat

Date: 15/9/2025



Signature:

Scientific Associate Name:

Hashim Abdulsattar Jabbar

Date: 15/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

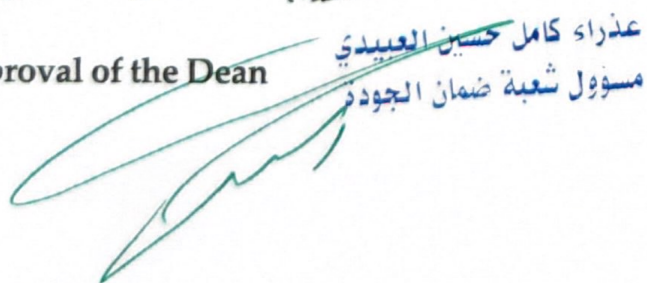
Date: 2025/9/15

Signature:



Approval of the Dean

عذراء كامل حسين العبيدي  
مسؤول شعبة ضمان الجودة



**Ministry of Higher Education and Scientific Research  
Scientific Supervision and Scientific Evaluation Apparatus  
Directorate of Quality Assurance and Academic Accreditation  
Accreditation Department**



# **Academic Program and Course Description Guide**

**2024**

## **Introduction:**

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

### **Concepts and terminology:**

**Academic Program Description:** The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

**Course Description:** Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

**Program Vision:** An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

**Program Mission:** Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

**Program Objectives:** They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

**Curriculum Structure:** All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

**Learning Outcomes:** A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

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Hashim Abdulsattar Jabbar

**Date:**

**The file is checked by:**

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

**Date:**

**Signature:**

**Approval of the Dean**

## Approval of the Dean

### 1. Program Vision

The College of Medicine seeks to be one of the leading higher education institutions at Tikrit University in the field of modern education and scientific research through its scientific, research and administrative activities. It also works to provide an integrated path for its students and professors to make them active and creative in serving society in the fields of medicine and general surgery.

### 2. Program Mission

Working to prepare and graduate leading scientific and leadership competencies in the field of medicine and its sciences and to develop the balance of knowledge in the field of scientific research to serve the local, regional and international community, as well as training and refining the minds of students scientifically and cognitively, and emphasizing social and cultural values and responding to the requirements of the local market.

### 3. Program Objectives

1. Embodying the vision, mission and goals of Tikrit University, and applying the best educational practices with a focus on ensuring and enhancing quality and performance.
2. Preparing specialized cadres capable of serving the community and preparing for the preparation of future specializations.

3. Spreading the culture of human diversity in society, transferring knowledge and skills in the field of medicine, writing academic research, and creative scientific achievement through student- and teaching-focused activities.
4. The college seeks to conclude scientific and cultural cooperation agreements with corresponding colleges and corresponding departments in different colleges to achieve best practices in the fields of education and learning.
5. Focusing on the educational and moral aspects of all its members and spreading the spirit of dedication, tolerance, commitment and work to serve the nation.
6. Paying attention to intellectual and cultural construction through openness to the experiences of other countries in the fields of medicine and general surgery. Focusing on the educational and moral aspect of the student and instilling a spirit of dedication, tolerance and commitment.

#### 4. Program Accreditation

Does the program have program accreditation? And from which agency?

#### 5. Other external influences

Is there a sponsor for the program?

#### 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	<b>Biochemistry</b>	<b>2 hours Theoretical</b>		
College Requirements				

<b>Department Requirements</b>				
<b>Summer Training</b>				
<b>Other</b>				

\* This can include notes whether the course is basic or optional.

<b>7. Program Description</b>				
<b>Year/Level</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credit Hours</b>	
			<b>theoretical</b>	<b>practical</b>
<b>2024\2025</b>		<b>biochemistry</b>	<b>2</b>	<b>3</b>

<b>8. Expected learning outcomes of the program</b>	
<b>Knowledge</b>	
Learning Outcomes 1	Introducing students to chemistry and its relationship to the body, its organs, metabolic processes, and understanding the reactions that occur
<b>Skills</b>	
Learning Outcomes 2	Expanding laboratory work skills
Learning Outcomes 3	Expanding the skill of biochemical analysis
<b>Ethics</b>	
Learning Outcomes 4	Teaching students to analyze scientific ideas and knowledge in the field of biochemistry
Learning Outcomes 5	Developing students' skills in the field of pathological analyses

<b>9. Teaching and Learning Strategies</b>
<p>1- Explaining the scientific material by presenting metabolic diagrams and chemical reactions.</p> <p>2- Conduct daily tests, either on paper or during lectures by asking questions to students.</p>

3- Linking scientific knowledge with students' ideas to facilitate understanding of the scientific material.

### 10. Evaluation methods

Weekly, monthly, daily exams and the end of the year exam.

### 11. Faculty

#### Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

#### Professional Development

##### Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

##### Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

### 12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

**13. The most important sources of information about the program**

Richard A. Harvey and Denise R. Ferrier, Lippincott's Illustrated Reviews: Biochemistry, Copyright © (2011) Lippincott Williams & Wilkins, a Wolters Kluwer business

**14. Program Development Plan**

Using modern technologies, devices and methods in education to facilitate understanding of information and develop skills among students

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2024\2025		Biochemistry	Basic												

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

## Course Description Form

1. Course Name:
Biochemisty
2. Course Code:
3. Semester / Year:
yearly
4. Description Preparation Date:
15/ 01/ 2025
5. Available Attendance Forms:
Attendance system only
6. Number of Credit Hours (Total) / Number of Units (Total)
60 theoretical hours in year. 3 hours per week
7. Course administrator's name (mention all, if more than one name)
Name: Prof.Dr.Firas Shawqi Algburi Email: <a href="mailto:dr.firas.shawki@tu.edu.iq">dr.firas.shawki@tu.edu.iq</a>
8. Course Objectives

<b>Course Objectives</b>	<b>1 - Providing students with</b> <b>2- Teaching students to u</b>
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**9. Teaching and Learning Strategies**

<b>Strategy</b>	1- Educational strategy, collaborative concept planning. 2- Brainstorming education strategy. 3- Education Strategy Notes Series
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**10. Course Structure**

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>
1			-Introduction to biochemistry; pH concept & acid base balance	
2			-Chemistry safety	
3			-Carboxylic acid& Alcohol and Aldehyde & Ketone	
4			-Carbohydrates	
5			-Carbohydrates metabolism 1	
6			-Carbohydrates metabolism 2	
7			-Lipid	
8			-Lipid metabolism 1	
9			-Lipid metabolism 2	
			-protein	
			-Protein metabolism 1	

10			-Protein metabolism 2	
11			-Bone mineral	
12			-Calcium turnover and parathyroid hormone	
13			-Vit. D metabolism	
14			-immunoglobulin	
15			-Ag-Ab reaction	
16			-compliment	
17			-Metabolism of RBC	
18			-HB structure	
19			-Iron metabolism and TIBC	
20			-Biochemical events in clotting process	
21			-Biochemical changes in leukaemia	
22			-Neurotransmitters	
23			-Chemical carcinogens	
24			-Energy requirement -Lipoprotein	
<b>11. Course Evaluation</b>				
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ..... etc				
<b>12. Learning and Teaching Resources</b>				
Required textbooks (curric books, if any)	<b>Richard A. Harvey and Denise R. Ferrier, Lippincott's Illustrated Reviews: Biochemistry, Copyright © (2011)</b>			

	<b>Lippincott Williams &amp; Wilkins, a Wolters Kluwer business</b>	
Main references (sources)		
Recommended books and references (scientific journals, reports...)	<b>Lehninger PRINCIPLES OF BIOCHEMISTRY, Fourth Edition</b>	
Electronic References, Websites	<a href="https://ifeet.org/files/-Richard A. Harvey, Denise R. Ferrier- Biochemistry.p">https://ifeet.org/files/-Richard A. Harvey, Denise R. Ferrier- Biochemistry.p</a>	<a href="https://mis.kp.ac.rw/admin/admin_panel/kp_lms/files/digital/Corse%20David%20L.%20Nelson,%20Michael%20M.%20Cox.pdf">https://mis.kp.ac.rw/admin/admin_panel/kp_lms/files/digital/Corse%20David%20L.%20Nelson,%20Michael%20M.%20Cox.pdf</a>

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|--|--|--|--|
|  |  | <ul style="list-style-type: none"> <li>b. Describe metabolism of iodide and iodine.</li> <li>c. Discuss the role of peroxidase, iodinase, coupling, protease, dehalogenase and thyroglobulin.</li> <li>d. Discuss thyroid stimulating hormone action via cAMP.</li> <li>e. Describe the regulation of thyroid stimulating hormone by thyroid releasing hormone and T4, T3, somatostatin and dopamine.</li> <li>f. Discuss T4 and T3 transport</li> <li>I. Hormonal control of calcium PO<sub>4</sub> metabolism I <ul style="list-style-type: none"> <li>a. Discuss absorption, metabolism and excretion of calcium and phosphate.</li> <li>b. Discuss the role of vitamin D in calcium and phosphate absorption</li> <li>c. Outline the effect of calcium ion concentration on the regulation of the active form of vitamin D levels</li> <li>d. List the major physiological effects of PTH <ul style="list-style-type: none"> <li>b. 5. Discuss the regulation of PTH secretion</li> </ul> </li> </ul> </li> <li><b>J. Hormonal control of calcium metabolism II</b> <ul style="list-style-type: none"> <li>a. Structure of calcitonin</li> <li>b. List the major physiological actions of calcitonin</li> <li>c. Discuss the regulation of calcitonin secretion</li> </ul> </li> </ul> |  |
|--|--|--|--|

d. Compare between PTH and calcitonin as regulators of calcium levels.

**K. Integrated metabolism and hormonal regulation**

a. Describe the metabolic picture in the well-fed state and during starvation in various tissues (liver, brain, muscle and adipose tissues).

b. Describe the regulation of glycogen metabolism, glycolysis, hexose

c. monophosphate, gluconeogenesis, lipid and amino acid metabolism by insulin/counter-regulatory hormones ratio.

**L. Steroidogenesis**

a. Describe the biosynthesis of steroid hormones.

b. Describe the role of cytochromes P-450 in steroidogenesis.

c. Describe defects and consequences of congenital adrenal hyperplasia.

**M. Biochemical Principles of Laboratory Techniques used for the measurement of hormones**

a. List the most important lab methods used for laboratory measurement of hormones Radio Immuno Assay (RIA)

			<p>Enzyme-Linked Immunosorbent Assay (ELISA),  Fluorescence Polarization Immuno Assay (FPIA),  b. Chemiluminescence enzyme immunoassay (CLIA)  c. 2. Understand the principles underlying the techniques used in hormone measurement.</p> <p><b>A. Biochemistry of Bone and connective tissue and bone metabolism</b></p> <p>a. Describe the biochemical structure of bone tissue, the collagen matrix and the hydroxyapatite cement.  b. List bone matrix proteins and describe their function.  c. Describe the Composition of calcified tissues, calcification in bones  d. and teeth and formation of hydroxyapatite.  e. Understand the role of alkaline phosphatase, calcium and phosphate  f. and vitamin D: 1,25-Dihydroxy-vit-D in bone formation and remodeling.  g. Review calcium and phosphate homeostasis.</p> <p><b>A. Metabolic disorders and clinical biochemistry of muscle and bone</b></p>	
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		<ul style="list-style-type: none"> <li>a. Discuss the markers for bone formation and Resorption and their clinical</li> <li>b. use in diagnosis Describe the molecular basis of: <ul style="list-style-type: none"> <li>a. Duchene Muscular Dystrophy.</li> <li>b. Glycogen storage diseases of muscle</li> <li>c. Muscle Mitochondrial diseases.</li> <li>d. Describe the molecular basis of Osteogenesis imperfecta and Ehlar</li> </ul> </li> <li>c. Danlos syndromes</li> </ul> <p><b>B. Metabolism of neurotransmitters</b></p> <ul style="list-style-type: none"> <li>a. Discuss the synthesis and degradation of gamma-amino-butyric acid (GABA)</li> <li>b. Discuss the synthesis and degradation of dopamine, epinephrine and nor-epinephrine</li> <li>c. Discuss the formation and catabolism of serotonin</li> <li>d. Discuss the glutamate metabolism</li> <li>e. Understand the brain peptides as neurotransmitters</li> </ul> <p><b>C. Role of kidney in acid base balance.</b></p> <ul style="list-style-type: none"> <li>a. Discuss urea and creatinine metabolism</li> <li>b. Understand the role of kidney in the regulation of hydrogen ions</li> </ul>	
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			<p>c. and bicarbonate buffer system.</p> <p>d. Discuss amino acids absorption by the kidney and their disorders.</p> <p><b>D. Renal fuction</b></p> <p><b>E. Body water and elctrolytes</b></p>	
<b>3. Course Evaluation</b>				
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc				
<b>4. Learning and Teaching Resources</b>				
Required textbooks (curric books, if any)	<p>1. CLINICAL BIOCHEMISTRY &amp; METABOLIC MEDICINE: Martin Andrew Crook B</p> <p>2. TEXTBOOK OF BIOCHEMISTRY For Medical Students. DM VASUDEVAN</p>			
Main references (sources)				
Recommended books and references (scientific journals, reports...)	<p>1. Clinical Chemistry. William J. Marshall .</p>			

Electronic References,	<a href="https://ifeet.org/files/-Richard A. Harvey, Denise R. Ferrier- Biochemistry.p">https://ifeet.org/files/-Richard A. Harvey, Denise R. Ferrier- Biochemistry.p</a>	<a href="https://mis.kp.ac.rw/admin/admin_panel/kp_lms/files/digital/Core%20%20David%20L.%20Nelson,%20Michael%20M.%20Cox.pdf">https://mis.kp.ac.rw/admin/admin_panel/kp_lms/files/digital/Core%20%20David%20L.%20Nelson,%20Michael%20M.%20Cox.pdf</a>
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Websites