



**AMERICAN
UNIVERSITY
OF BEIRUT**

**FACULTY OF MEDICINE
DEPARTMENT OF BIOCHEMISTRY
AND MOLECULAR GENETICS
COURSE SYLLABUS
BIOC 246- Biochemistry for Nursing
Semester Fall**

I. General Course Information

Course Number	BIOC 246
Course Title	Biochemistry for Nursing
Number of Credits	Four
Course Level	Undergraduate
Course Format	Face-to-face
Pre-requisite Courses	None
Required/Elective	Required
Meeting Schedule	Tuesdays, Wednesdays, and Thursdays (2:00-2:50 PM) and Fridays (10:00-10:50 AM)
Meeting Location	DTS Building; Med-1 Room, Floor B

II. Course Coordinator, Instructors and Teaching Assistants

Name (Dr.)	Role	Office Location	Office Hours	Extension	E-mail
Nadine Darwiche	Professor & Course Coordinator	DTS, 4 th Floor, Room 419-E	To Be Announced or by Appointment	4803	nd03@aub.edu.lb
Tarek Ghaddar	Professor	Chemistry, Room 428	To Be Announced or by Appointment	4057	tg02@aub.edu.lb
Athar Khalil	Assistant Professor	DTS, 4 th Floor, Room 419-B	To Be Announced or by Appointment	4807 / 4830	ak195@aub.edu.lb
Katia Maalouf	Research Associate	DTS, 4 th Floor, Room	To Be Announced or by Appointment	4806	kg21@aub.edu.lb
Mohammad Chehab	Teaching Assistant		By Appointment		mrc10@mail.aub.edu

III. Course Description

- Biochemistry for Nursing is a 4-credit-hour course (BIOC 246)
- The course is offered during the first semester (fall semester) of the academic year. It is tailored and designed for B.S. Nursing students, combining general, organic, and biological chemistry.
- Biochemistry is integral to nursing education. It provides nursing students with knowledge to understand and manage biochemical aspects of health and disease. The course equips students with an education that fosters critical thinking and problem-solving skills essential for nursing practice.

IV. Course Learning Outcomes

Course objectives are to:

1. Provide nursing students with knowledge for effective clinical practice and patient care.
2. Introduce students to basic concepts in chemistry, organic and Biochemistry. It emphasizes the main biochemical pathways in the cell and defines the interrelations between the different metabolic pathways.
3. Unify students' background needed for comprehending related fields such as physiology, microbiology, pharmacology, clinical biochemistry, and nutrition. The course is composed of three units: General Chemistry, Organic Chemistry, and Biochemistry.

Upon completion of the course, students will be able to:

1. Know general and basic concepts in chemistry, such as reactivity of atoms, pH, and electrostatic /hydrophobic interactions all are important in understanding later protein structure and function.
2. Be able to identify the functional groups in a molecule and predict their reactivity.
3. Know the fate of the various cellular biomolecules; in addition, he/she should be able to highlight their metabolic pathway.
4. Clinically correlate a disease to a biochemical defect in which a block in a specific pathway occurs.

V. Course Resources and References

Students are responsible for information provided on MOODLE as uploaded handouts, power point presentations, explanation documents, homework, assignments, and lectures in addition to any information brought up or discussed during the class lectures.

VI. Course Outline

Course Schedule Overview 2026- 2027

Session	Date	Topic	Lecturer
1	Tu, 1 Sept.	Introduction	ND
2	Wed, 2 Sept.	Atoms and Molecules	TG
3	Thu, 3 Sept.	Chemical Bonds	TG
4	Fri, 4 Sept.	Chemical Quantities and Oxidation Reduction	TG
5	Tu, 8 Sept.	Solutions: Concentration, Molarity	TG
6	Wed, 9 Sept.	Acidity, Basicity	TG
7	Thu, 10 Sept.	Biological Buffers	TG
8	Fri, 11 Sept.	Problem Solving	TG
9	Tu, 15 Sept	Problem Solving and Q&A	TG
10	Wed, 16 Sept.	Organic Compounds: Classification	TG
11	Thu, 17 Sept.	Naming of Organic Compounds	TG
12	Fri, 18 Sept.	General Organic Reactions	TG
13	Tu, 22 Sept.	Alcohols	TG
14	Wed, 23 Sept.	EXAM – 1 (Lectures 2-9)	TG
15	Thu, 24 Sept.	Aldehydes and ketones	TG
16	Fri, 25 Sept.	Organic acid Derivatives	TG
17	Tu, 29 Sept.	Organic Amines	TG
18	Wed, 30 Sept.	Carboxylic Acids	TG
19	Thu, 1 Oct.	Problem Solving	TG
20	Fri, 2 Oct.	Problem Solving and Q&A	TG
21	Tu, 6 Oct.	Introduction to Biochemistry	AK
22	Wed, 7 Oct.	Amino Acids	AK
23	Thu, 8 Oct.	Amino Acids	AK
24	Fri, 9 Oct.	Peptide bond, Protein Primary structure	AK
25	Tu, 13 Oct.	Proteins Secondary, Tertiary & Quaternary Structures	AK
26	Wed, 14 Oct.	EXAM – 2 (Lectures 10-20)	TG

27	Thu, 15 Oct.	Proteins Inactivation, Protein Denaturation	AK
28	Fri, 16 Oct.	Enzymes Classes and Properties	AK
29	Tu, 20 Oct.	Enzyme Kinetics and Inhibition	AK
30	Wed, 21 Oct.	Enzyme Regulation	AK
31	Thu, 22 Oct.	Introduction to Metabolism	ND
32	Fri, 23 Oct.	Carbohydrates	ND
33	Tu, 27 Oct.	Glycolysis	ND
34	Wed, 28 Oct.	Tricarboxylic Acid Cycle	ND
35	Tu, 3 Nov.	Tricarboxylic Acid Cycle	ND
36	Wed, 4 Nov.	Electron Transport Chain	ND
37	Thu, 5 Nov.	Glycogen Metabolism	ND
38	Fri, 6 Nov.	EXAM – 3 (Lectures 21-30)	AK
39	Tu, 10 Nov.	Gluconeogenesis	ND
40	Wed, 11 Nov.	Hexose Monophosphate Shunt	ND
41	Thu, 12 Nov.	Regulation of Carbohydrate Metabolism/Team-based learning	ND
42	Fri, 13 Nov.	Lipids- Classes	KM
43	Tu, 17 Nov.	Fatty Acid Oxidation	KM
44	Wed, 18 Nov.	Fatty Acid Oxidation	KM
45	Thu, 19 Nov.	Ketone Bodies	KM
46	Fri, 20 Nov.	EXAM – 4 (Lectures 31-41)	ND
47	Tu, 24 Nov.	Fatty Acid Synthesis	KM
48	Wed, 25 Nov.	Amino Acid Metabolism- General	KM
49	Thu, 26 Nov.	Urea Cycle	KM
50	Fri, 27 Nov.	Amino Acid Catabolism	KM
51	Tu, 1 Dec.	Amino Acid Disorders	KM
52	Wed, 2 Dec.	DNA/RNA	ND
53	Thu, 3 Dec.	DNA Replication	ND
54	Fri, 4 Dec.	Transcription and Translation	ND
		Reading Period (Dec. 5-8)	
55	To be announced	EXAM - 5 (Lectures 42-54)	ND-KM

VII. Grading Criteria

Type of Evaluation	Percentage
Exam- 1	15%
Exam- 2	15%
Exam- 3	20%
Exam- 4	20%
Exam- 5	25%
Attendance & Participation	5%
Total	100%

VIII. Course Policies

Attendance

For undergraduate courses:

- Attendance is mandatory. Students are requested to attend all lectures and sessions. Students who miss more than one-fifth of the sessions of any course prior to the withdrawal deadline can be withdrawn from the course by the instructor.
- Students may be excused if he/she is absent for a valid reason that includes illness or family emergency. The course director must be informed ahead of time. It is the student responsibility to obtain the excused absence in timely manner. Absent students must make up for the missed activity at the discretion of the course director.
- Late submission of assignments will not be tolerated, therefore **NO grades will be granted**
- Professionalism: Students are expected to attend classes, to listen to questions, and actively participate in the ongoing discussion. Students must demonstrate a collegial attitude and behave in a polite and respectful manner with peers and faculty.
- **NO** talking and **NO** cellphones are allowed during lectures or sessions.
- **NO** student will be allowed to withdraw beyond the time set by the Registrar's Office (Oct. 10).

Credit Hour Policy

This course follows AUB Credit Hour Policy for four-credit courses. This course meets four times weekly for 1 academic hour per week. The course also includes assignments and exams during academic hours per week.

Final Examinations: (Exam-5)

Please note that students are expected to be on campus and available to take a final examination for any of their courses at any time during the final examination period. For the current term, the final examination will be announced by the registrar. Students and professors will be notified of the final examination schedule being posted on the [Office of the Registrar website](#).

Exam and Make-up Exams Details

- [MAKE UP for missed exams will be subjective](#)
- Exam I (lectures 2-9)
- Exam II (lectures 10-20)
- Exam III (lectures 21-30)
- Exam IV (lectures 31-41)
- Exam V (lectures 42-54)
- Exam location will be announced
- The Director has the right to modify the schedule and topics as deemed necessary.

IX. University Rules and Regulations

General Academic Information

- [Undergraduate Academic Information](#)

University - Course Withdrawal Policy

A student can withdraw from only one required course per semester. Students who wish to withdraw from more than one required course in any given semester must petition the appropriate faculty committee for permission to do so. Check Withdrawal Information from [undergraduate](#) catalogue.

Academic Integrity (cheating and plagiarism)

Please refer to [AUB Student Code of Conduct](#), in particular section 1.1, which concerns academic misconduct including cheating, plagiarism, in-class disruption, and dishonesty. Please be aware that misconduct is vigorously prosecuted and that AUB has a zero-tolerance policy. Course policy is that credible evidence of cheating will result in course failure.

Accessibility Statement to Acknowledge the Unique Learning Needs of Students with Disabilities

AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a diagnosed disability (including learning disability, mental health, chronic or temporary medical conditions), please contact the [Accessible Education Office](#) as soon as possible in order to help establish reasonable accommodations and facilitate a smooth learning process: accessibility@aub.edu.lb; +961-1-350000, x3151; West Hall, 338.

Failure to implement the accommodations provided by the Accessible Education Office constitutes a violation of AUB's non-discrimination policy, and may be reported to the Equal Opportunity Officer/Title IX Coordinator who also serves in the role of Section 504 Coordinator, at 01-350000 ext. 2514, titleix@aub.edu.lb.

Non-Discrimination and Anti-Discriminatory Harassment, including Sexual Harassment at AUB <https://www.aub.edu.lb/President/oeo-titleix/Pages/syllabus.aspx>

In line with its commitment to the principle of equal opportunity in admission, education, and employment, AUB policies protect you from discrimination and discriminatory harassment, including sex discrimination and sexual harassment, in alignment with the objectives of Title IX of the U.S. Education Amendments of 1972.

The policies are applicable to all the AUB Community including: officers, faculty, staff, academic appointees, students (including medical interns and residents), visiting students, alumni, trainees, visitors, contractors, subcontractors, suppliers, located on campus and at AUB Medical Center, Advancing Research Enabling Communities Center (AREC), or any other facility or program affiliated with the University. The "AUB Community" also includes the dependents and domestic employees of faculty and staff dwelling on campus and at AREC.

If you think you have experienced discrimination, discriminatory harassment, or sexual harassment, we encourage you to inform the Title IX Coordinator, Mitra Tauk at 01-350000 ext. 2514, titleix@aub.edu.lb, report to a Title IX deputy at your faculty or at any other faculty (www.aub.edu.lb/titleix), or report online (www.aub.ethicspoint.com).

AUB Grading System

<https://www.aub.edu.lb/Registrar/Pages/academic-information.aspx>

Numeric Course Grade to Letter Course Grade

Table 1: Numeric Course Grade to Letter Course Grade

Starting with Numeric Course Grade /100	Corresponding Course Letter Grade
< 60	F
60	D
61–62	D+
63–65	C–
66–68	C
69–71	C+
72–74	B–
75–78	B
79–82	B+
83–86	A–
87–92	A
93–100	A+

Grade Conversion Chart

Table 2: Grade Conversion Chart

Course Letter Grade	Quality Points
A+	4.3
A	4.0
A–	3.7
B+	3.3
B	3.0
B–	2.7
C+	2.3
C	2.0
C–	1.7
D+	1.3
D	1.0
F	0.0

Note: The GPA at AUB is capped at 4.0

I	P	PR	W	NP
Incomplete	Pass	In Progress	Withdraw	No Pass