

**Course Title:** Applied Biochemistry

**Field and Level of Study:** Ph.D. in Microbiology

**Faculty:** Medicine

**Course Code:** [To be filled]

**Academic Year:** 2024-2025 (1404-1403 Persian Calendar)

**Prerequisite:** General Biochemistry

**Number of Credits:** 2 Practical + 1 Theoretical

**Semester:** Bahman

**Teaching Staff:** Babaahmadi / Taghavi / Rashidi / Ijder / Faridi / Hashemnia / Faculty of Pharmacy

**Class Day and Time:** Tuesdays, 10:00 AM - 12:00 PM

Session	Date	Course Topics (Concepts Expected to be Taught)	Learner Activities	Teaching Method	Instructor
First	1403/11/29	Basics of Laboratory Work, Sample Collection and Preservation			Dr. Salehipour
Second	1403/12/06	Quality Control in the Laboratory			Dr. Salehipour
Third	1403/12/13	Spectrophotometry and Nephelometry			Dr. Faridi
Fourth	1403/12/20	Practical Section: Spectrophotometry			Dr. Faridi
Fifth	1404/01/18	Spectrofluorimetry and Chemiluminescence			Dr. Rashidi
Sixth	1404/01/25	Practical Section: Spectrofluorimetry			Dr. Rashidi
Seventh	1404/02/01	Types of Centrifuges (Regular, Speed, Ultra) and Conventional Chromatography (Column, etc.)			Dr. Ghasemian
Eighth	1404/02/08	Practical Section: Speed Centrifuge and Conventional Chromatography			Dr. Ghasemian
Ninth	1404/02/15	High-Performance Liquid Chromatography (HPLC)			Dr. Ijder
Tenth	1404/02/22	Practical Section: High-Performance Liquid Chromatography (HPLC)			Dr. Ijder
Eleventh	1404/02/29	Electrophoresis and Its Types (Cellulose Acetate, Agarose, PAGE, etc.) – Western Blot			Dr. Faridi
Twelfth	1404/03/05	Practical Section: Polyacrylamide Gel Electrophoresis (PAGE) and Western Blot			Dr. Faridi
Thirteenth	1404/03/12	PCR, RT-PCR			Dr. Babaahmadi
Fourteenth	1404/03/19	Practical Section: PCR			Dr. Babaahmadi
Fifteenth	1404/03/26	ELISA			Dr. Hashemnia
Sixteenth	1404/04/02	Practical Section: ELISA			Dr. Hashemnia
Seventeenth	1404/04/09	Flow Cytometry / Practical			Dr. Hashemnia
Eighteenth	1404/04/16	Atomic Absorption Spectroscopy – Theory			Dr. Ijder
Nineteenth	1404/04/23	Atomic Absorption Spectroscopy – Practical			Dr. Ijder
Twentieth	1404/04/30	Application of Radioisotopes (Principles of Radioactivity and			Dr. Ijder

		Measurement, Operation of Gamma Counter and Beta Counter) – Theory			
Twenty-First	1404/05/06	Application of Radioisotopes (Principles of Radioactivity and Measurement, Operation of Gamma Counter and Beta Counter) – Practical			Dr. Ijder