

Course Description Form

1. Course Name:	
Pharmaceutical Biotechnology	
2. Course Code:	
Phind25-5214	
3. Semester / Year:	
2025-2026 1 st Semester	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms:	
Written form	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2	
7. Course administrator's name(s)	
Dr. Omer Abdulhakim Hamid	
Dr. Mohanad A. Alfahad	
8. Course Objectives	
Course Objectives	The education of students to increase their knowledge and expertise in the development, application, and therapeutic use of “biotech” drugs
9. Teaching and Learning Strategies	
Strategy	The course is structured into two sections. A basic science and general features section and a various therapeutic classes of protein biologics.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Background knowledge	Molecular Biotechnology: From DNA Sequence to Therapeutic Protein	In person	Oral evaluation
2	2	Protein structure	Biophysical and Biochemical Characteristics of Therapeutic Proteins	In person	Oral evaluation
3	2	Stability of proteins	Protein Stability and Characterization	In person	Oral evaluation
4	2	Characterization of proteins	Protein Stability and Characterization	In person	Oral evaluation
5	2	Kinetics of proteins	Pharmacokinetics and Pharmacodynamics of Therapeutic Peptides and Proteins	In person	Oral evaluation
6	2	Route of Administration for proteins	Formulation of Biologics Including Biopharmaceutical Considerations	In person	Oral evaluation

7	2	Formulation requirements	Formulation of Biologics Including Biopharmaceutical Considerations	In person	Oral evaluation
8	Mid term Exam				
9	2	Vaccines	Vaccines	In person	Oral evaluation
10	2	Insulin	Insulin	In person	Oral evaluation
11	2	Monoclonal antibodies	Monoclonal Antibodies: From Structure to Therapeutic Application	In person	Oral evaluation
12	2	Immunogenicity of Therapeutic Proteins	Immunogenicity of Therapeutic Proteins	In person	Oral evaluation
13	2	Handling, Biotechnology Products	Dispensing Biotechnology Products: Handling, Professional Education, and Product Information	In person	Oral evaluation
14	2	Biosimilars	Regulatory Framework for Biosimilars	In person	Oral evaluation
15	2	Regulation rules	Regulatory Framework for Biosimilars	In person	Oral evaluation
Final exam					

11. Course Evaluation

10 units for a seminar presentation prepared by each student,
20 units for the mid examination and
70 units for the final one.

12. Learning and Teaching Resources

Required textbooks	Pharmaceutical Biotechnology Fundamentals and Applications Daan J. A. Crommelin • Robert D. Sindelar Bernd Meibohm
Main references (sources)	Pharmaceutical Biotechnology Fundamentals and Applications Daan J. A. Crommelin • Robert D. Sindelar Bernd Meibohm
Electronic References, Websites	