

Semester-VI					
Programme	BS Chemistry	Course Code	Chem-380	Credit Hours	3
Course Title	Immunology		Course Type	Minor Elective	
Course Introduction					
<p>After studying this course, student will be able understand antigens, antibodies and immunity. It will also help to understand the abnormalities of immune system.</p> <p>The immune system. Detailed structure, chemistry and synthesis of immunoglobulins. Immunogenicity and antigenicity. Properties of Immungens for B and T lymphocytes activation. Myeloma and hybridoma immunoglobulins. Complement system. Inflammatory process. Peripheral leucocytes and Macrophages. Abnormalities of the immune system-autoimmunity. Diagnostically important plasma enzymes and proteins, identification and treatment of enzyme deficiencies. Assessment of cell damage, factors affecting results of plasma essay, abnormal plasma enzymes</p>					
Learning Outcomes					
<ol style="list-style-type: none"> 1. After studying this course, students will be able to learn the immunity in the body and their system 2. Students will also learn the different components helping in immunity 3. It will also help to learn clinical aspects and associated disease with their management to sustain the healthy life 					
Course Content				Assignments/Readings	
Week 1	General lecture about the importance of immunology in life			-	
	The immune system. Detailed structure, chemistry and synthesis of immunoglobulins.			Class base learning/test	
Week 2	Immunogenicity and antigenicity			Class base learning/test	
	Properties of Immungens for B and T lymphocytes activation.			Class base learning/test	
Week 3	Myeloma and hybridoma immunoglobulins.			Class base learning/test	
Week 4	Complement system regarding immune system			Class base learning/test	
	Class Discussion				
Week 5	Inflammatory process and immune system			Class base learning/test	
	Peripheral leucocytes and Macrophages their role and implication in the life and immune system			Class base learning/test	
Week 6	Abnormalities of the immune system-autoimmunity.			Class base learning/test	
Week 7	Class discussion and Quiz			Class base learning/test	
Week 8	Midterm			-	
Week 9	Diagnostically important plasma enzymes and proteins			-	

Week 10	Identification and treatment of enzyme deficiencies. And their associate diseases and management	Class base learning/test
Week 11	Class Discussion and repeated topics if required	-
Week 12	Assessment of cell damage in detailed	Class base learning/test
Week 13	Plasma Assays and the factors affecting results of plasma essay	Class base learning/test
Week 14	Abnormalities in the plasma enzymes and their implications	Class base learning/test
Week 15	Class discussion	-
	Quiz (Give marks, if necessary, from assignment)	-
Week 16	Submission of assignments. If required then discussion the whole chapter for final term exams preparation	-
Reading Material		
<ol style="list-style-type: none"> 1. Lehninger, A. L., Nelson, D. L., & Cox, M. M. (2020). <i>Principles of biochemistry</i> (8th ed.). W. H. Freeman and Company. 2. Stryer, L. (2021). <i>Biochemistry</i> (9th ed.). W. H. Freeman and Company. 3. Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., & Rodwell, V. W. (2018). <i>Harper's biochemistry</i> (32nd ed.). McGraw-Hill Education. 4. Champ, C., Harvey, R. A., & Ferrie, D. R. (2021). <i>Lippincott's biochemistry</i> (6th ed.). Wolters Kluwer. 5. Voet, D. J., Voet, G. J., & Pratt, C. W. (2023). <i>Fundamentals of biochemistry</i> (5th ed.). Wiley. 6. Smith, A. F., Beckett, G., Walker, S., & Rae, P. (2022). <i>Lecture notes on clinical chemistry</i> (7th ed.). Wiley-Blackwell. 		
Teaching Learning Strategies		
<ul style="list-style-type: none"> • Lecturing using white/black board/Multimedia • Written Assignments/Quiz/Task/Presentation • Checking the task 		
Assignments: Types and Number with Calendar		
Assignment, Quiz, Task, Presentation etc.		

Assessment			
Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.