Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2023-2024

Course Handout Part II

Date: 11-08-2023

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : **PHA F415**

Course Title : **Pathophysiology**

Instructor In-charge : **Dr. Abhijeet Rajendra Joshi**

1) Scope & Objective of the Course:

This course is intended to give the students an insight into the physiological changes associated with the disease conditions and tissue injuries. It intends to make students understand the molecular mechanisms, molecular pathways and cellular pathophysiology associated with disease pathology. This course will provide brief overview of cellular mechanisms, molecular pathways, and clinical symptoms associated with various human pathological conditions like, autoimmunity, degenerative diseases, inflammatory diseases, metabolic diseases, infectious diseases and cancer.

Learning Outcomes (course benefits): Students who have undergone the course are expected to

- Explain the mechanism of cellular injury associated with a particular human disease
- Understand the rationale behind the clinical symptoms associated with human diseases
- Understand the molecular mechanisms of drugs used for the treatment of various diseases
- Explain the molecular pathways associated with development of human diseases

2) Text book:

1) The Robbins Pathologic Basis of Disease by S.L Robbins, R.S.Cotran and Vinay Kumar. Saunders Company, Philadelphia: 6th edition 1991.

Reference Books:

1) Color Atlas of Pathophysiology by Florian Lang, Stephen Silbernagl, Theieme Medical Pub: (May 2000).

2) Essentials of Pathophysiology: Concepts of Altered Health States. Porth, Carol. Philadelphia :Lippincott Williams & Wilkins, 4th edition

3) **Course Plan:**

Lect. No.	Learning Objectives	Topics to be covered	Chap/Sec No. (Book)
1-4	Understand the Fundamentals and mechanisms of cellular injury	Cell adaptation, Cell injury and Cell death, necrosis, apoptosis, necroptosis	T1-Ch1, R1-Ch1, R2-Ch2
5-10	Understand the molecular mechanisms and pathways involved in acute and chronic inflammation	Mediators of inflammation, cellular responses, role of various cells in inflammation , pathogenesis of gout	T1-Ch2, R1-Ch3, R2-Ch3
11-16	Understand the molecular pathways and mechanisms involved with the development of autoimmunity	Mechanisms of autoimmunity and Rheumatoid arthritis, Multiple sclerosis, Myasthenia Gravis, GBS/CIDP	T1-Ch4, R1-Ch3, R2-Ch16,44, class notes
17	Understand the molecular pathways and mechanisms involved with the development of COVID-19	Pathophysiology of COVID-19	Class notes. Review articles
18-20	Understand the molecular pathways and mechanisms involved with respiratory Disorders	Pathophysiology of Asthma, smoking-induced COPD	T1-Ch12, R1-Ch4, R2-Ch23
21	Understand the molecular pathways and mechanisms involved with gastrointestinal disease	Gastric ulcer	T1-Ch14, R1-Ch6, R2-Ch29
22-25	Understand the molecular pathways and mechanisms involved with the development of cardiovascular Disorders	Pathophysiology of atherosclerosis, hypertension, stroke, angina	T1-Ch9,10, R1-Ch7, R2-Ch19, class notes
26-28	Understand the molecular pathways and mechanisms associated with diabetes and obesity	Pathophysiology and consequences of diabetes and hyperlipidemia	T1-Ch19, R1-Ch8,9, R2-Ch33

29-36	Understand the molecular pathways and mechanisms involved with nervous system disorders and associated diseases	Depression, anxiety, Pain, Parkinson's disease, and Alzheimer's disease, ALS, motor nerve disorders (SMA), migraine, Rabies	T1-Ch22, R1-Ch10, R2-Unit 10, class notes, review articles
37-40	Understand the molecular pathways and mechanisms involved with the development of cancer	The molecular and biochemical basis of cancer, Pathophysiology of Neoplasia	T1-Ch5, R1-Ch1, R2-Ch7

4) **Evaluation Scheme:**

Component	Duration	Weightage	Date	Time
Surprise quizzes	30 mins	15 %	Before mid sem (CB)	
Mid sem	90 mins	30 %	09/10 - 11.30 - 1.00PM (CB)	
Surprise quizzes	30 mins	15 %	After mid sem (CB)	
Compre. Exam.	180 min	40 %	06/12 AN (50% open book)	

5) Mid-Semester Grading: Mid-semester grading will be announced just after Mid sem exam on the basis of marks secured in mid sem and surprise quiz Marks

6) Make-up: Prior approval or intimation to take a make-up is mandatory. It is solely at the discretion of the instructor-in-charge, depending upon the genuineness of the circumstances, to allow or disallow a student to appear for a make-up evaluation component. No makeup will be granted for Assignments/Quizzes under any circumstances.

7) Grading Procedure:

- Grading will be done by "bunching" procedure. Total marks obtained by the students will be arranged in descending order, 'bunches' will be identified and grades awarded accordingly. Fine grading system (A, A-, B, B-....) will be followed.
- It is not mandatory for the instructor-in-charge to award all the grades (A to E); subjective judgment will be used for awarding the grades.
- As specified in Handout – Part I, appended to the timetable, the instructor in-charge reserves the right to award a NC report in case the student does not make himself/ herself available for any of the evaluation component mentioned above.
- Borderline cases during grading will be judged on the basis of regularity to classes and consistency or progress in the performance in evaluation components.

8) Chamber Consultation Hours: To be announced in class.

9) Notices: All the notices pertaining to this course will be displayed only on CMS

10) Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

Instructor-in-charge
PHA F415