FIRST SEMESTER 2016-2017

Course Handout (Part - II- B)

Date: 28/7/2016

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 G522**
Course Title	**: Chemistry of Macromolecules**
Instructor-in-Charge	**: Atish T. Paul**

1. **Scope & Objective of the Course:**

   The course deals with the selected classes of macromolecules, their synthesis, sequencing, and their significance in new drug design and development based on pharmacological and bio-chemical pathways involved.

2. **Text Book (TB)**

   1. Finar, IL, Organic Chemistry, Vol. II,: Stereochemistry and Chemistry of Natural Products, V Edn., ELBS/Longman, Reprint-1983.
   2. S.V. Bhat , M Shivkumar : Chemistry of Natural Products, NAROSA publishing house, New Delhi. 2005

3. **Reference Books (RB)**

   1. Koji Nakanishi et al., Natural Products Chemistry, Vol. I, Kodansha Ltd, Academic Press Inc., Tokyo, 1974.
   2. Finn Wold, Macromolecules: Structure and Function, Prentice-HallInc., New Jersey,1971.
   3. Thomson, R.H., The Chemistry of Natural Products, II Edn. Blackie Academic and Professional, Chapman and Hall, Madras, 1993.
   4. Ravve, A.,Organic Chemistry of Macromolecules: Marcel Dekker Inc.,New York, 1967.
   5. Moore, J.A., Macromolecular Synthesis, Collective Volume: I, John Wiley and Sons Inc., New York, 1977.
   6. Journals of Medical Chemistry, Natural Products, Organic Chemistry and American Chemical Society.

4. **Lecture Plan (tentative):**

Lect. No.	Topics to be covered	Objective	Reference
1-3	Brief introduction to the chemistry of Natural Drugs	Introduction, isolation, separation techniques	TBs, RBs
4-9	Study of Carbohydrates	Classification, stereochemistry, reaction, their medicinal and pharmaceutical use.	TB2:7; TB1:17
10-14	Study of Proteins and Peptides	Amino acids, peptide synthesis and sequencing, Study of the structure of proteins	TB2: 5 TB1:13
15-18	Study of Steroids and related compounds	Introduction, biosynthesis of steroids, synthesis and various structural modification of estrogen, progesterone, testosterone and corticosteroids	TB2:1; TB1:9,11,17; RB:1-6
19-22	Study of Prostanoids	Nomenclature, biosynthesis, biological significance and various synthetic approaches of prostaglandins	TB2:3, RB:7
23-27	Study of natural and synthetic polymers	Polymerization reactions, free radical, anionic and cationic polymerizations, copolymers, rubbers,, uses of polymers in healthcare/ medicine	TB1: 7,13,16; RB4-1,3,9,12
28-32	Study of Nucleic Acids	Synthesis and sequencing of nucleic acids. Drugs acting as anti- nucleosides and related drug design.	TB2: 6; RB:2-5
33-36	Biologically active drugs derived from natural origin	Biological activity, their importance, their synthetic and semi-synthetic derivates	RB: 7

Latest information on Topics, above will also be covered, besides information in text, reference books and will be included in all evaluation components.

5. Evaluation:

Component	Duration	Weightage (%)	Date & Time	Remarks
Mid. Sem. test	90 min.	30	4/10 8:00 - 9:30 AM	Closed Book
Literature Survey, Assignment(s), Presentation	---	40	Continuous assessment* (Open book)	
Compre. Exam	180 min.	30	3/12 AN	Closed Book

***** Literature Survey and Assignment(s) will be theory oriented, for which a proper report in a standard format should be submitted as per deadline(s) that would be announced. Presentation will be based research articles.

All evaluation components are equally important irrespective of weightage. Hence, students failing to attend or absenting themselves in one or many of the evaluation components may become ineligible for obtaining a valid grade at the end of the semester.

Chamber consultation hour: To be announced in class.

Notices: Notices concerning the course will be displayed on the Pharmacy Group Notice Board only.

Make-Ups: Make-Ups are not given as a routine. It is solely dependent upon the GENUINENESS OF THE CIRCUMSTANCES under which a student fails to appear in a scheduled evaluation component. In such circumstances, prior permission should be obtained from the Instructor-in-Charge. In no case the make-up letter be slipped inside the chamber of the Instructor-In-Charge.

Instructor - In -Charge

PHA G522