



FORMEN CHRISTIAN COLLEGE, LAHORE

Department of Chemistry

Advances in Natural Products CHEM 746

Instructor: Dr. Muhammad Abbas

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Advising hours: 10:00-15:00 in S-134

Course Objective:

This course is designed to

- Enhance the self-reliance of the students.
- Prepare the students for independent and systematic investigations leading to scientific discoveries
- Train the students in understanding the high-quality scientific research work
- Master their presentation skills
- Promote professional development and growth

Course Content:

Recent advances in chemistry of natural products, alkaloids, terpenoids and flavonoids, and their application in various fields such as medicine, food, and agriculture; advances in isolation techniques, structural elucidation, structure-activity relationship (SAR) and derivatization.

Case study

In case study, student will get a specific research publication which will be discussed in the class. Students will be advised to find out the relevant publication by themselves and discuss in the class after the approval of instructor.

Presentations

Students must deliver presentations throughout the course. The presentations will be evaluated and have weightage in the total marks (Topic depth 50%, slide preparation 25%, and delivery of presentation 25%).

Evaluation/Examination:

1. Moodle Assignments	20%
2. Presentation	20%
3. Mid Term	20%
4. Final Examination	35%
5. Class participation	05%

Attendance

A student must be regular and punctual. He/she should normally attend all classes. 80% attendance is must to qualify to sit in the final examination.

Week Plan/Course Breakup

Week	Course Content
1 st Week	1. Introduction to Natural Products i. General introduction and Classification of natural products
2 nd Week	2. Extraction and Chromatographic techniques i. Thin Layer Chromatography ii. High pressure Liquid Chromatography (Reversed Phase and UPLC) Moodle Assignment for all students 01
3-4 th Week	3. Bioassay guided fractionation and isolation of natural products i. Case study Recent advances in natural products from plants for treatment of liver diseases (European Journal of Medicinal Chemistry, 63, 2013, 570 – 577) Moodle Assignment 02
5 th Week	4. Terpenoids i. Introduction to Terpenoids, classification and uses ii. Case study (Topic will be assigned later)
6 th Week	5. Alkaloids Introduction to Alkaloids, classification, and Alkaloid-based drugs in the market Case study Notoamides A–D: Prenylated Indole Alkaloids Isolated from a Marine-Derived Fungus, <i>Aspergillus</i> sp. (Angew. Chem. Int. Ed. 46, 2007, 2254 – 2256) Moodle Assignment 03
7 th Week	6. Flavonoids Introduction to Flavonoids, classification and uses Case study (Topic will be assigned later) Moodle Assignment 04
8 th Week	PRESENTATIONS Mid-Term Examination
9 th Week	7. Natural products in food Case study (Topic will be assigned later) Moodle Assignment 05
10 th Week	8. Natural Products in Agriculture Case study (Bio- pesticides)
11 th Week	9. Natural Products as Backbone for Modern Drug Discovery Case study (Automation and Libraries of Natural Products)

12 th Week	10. Structure Activity Relationship (SAR) Case study (Topic will be assigned later) Moodle Assignment06
13 th Week	11. Derivatization of Natural Products Case study (Topic will be assigned later)
14 th Week	PRESENTATIONS
15 th Week	Final