School of Chemistry
Faculty of Sciences
University of the Punjab, Lahore
Course Outline

VIII Semester

Programme	BS (Chemistry)	**Course Code**	**Chem-499**	**Credit Hours**	3
Course Title	**Capstone Project**				

Course Introduction

Here is a brief description of course outlines:
The Capstone Project course provides BS Chemistry students with the opportunity to apply the techniques learnt and knowledge acquired throughout their program, particularly from the 'Fieldwork' course. Students will analyze collected or prepared samples, visualize and interpret data, validate results, and compile a comprehensive report in a professionally acceptable format. This course emphasizes hands-on project work, professional writing, and presentation skills.

Learning Outcomes

By the end of this course, students will be able to:

1. Apply analytical techniques for sample analysis and characterization.
2. Collect, manage, and visualize experimental data effectively.
3. Interpret data and draw valid scientific conclusions.
4. Compile a comprehensive, professionally written report on their findings.
5. Present their project results clearly and professionally to an audience.

Requirement for Capstone

Capstone project of three (03) credit hours is a mandatory degree award requirement for Bachelor of Science (BS) in Chemistry. A capstone project is a multifaceted body of work that serves as a culminating academic and intellectual experience for students, which may also be in the form of a research report or thesis. It must be supervised and graded by a faculty member as per the protocols prescribed by the concerned department. This requirement cannot be substituted with additional course work as internship.

Course Content		**Assignments/Readings**
Week 1	**Sample Analysis and Characterization** • Analysis of samples collected or prepared during fieldwork • Techniques for sample characterization (spectroscopy, chromatography, microscopy etc.) • Ensuring the accuracy and reliability of analytical data • Documenting and organizing experimental procedures and results	
Week 2	Continues	
Week 3	Continues	
Week 4	Continues	
Week 5	Continues	
Week 6	Continues	

Week 7	**Data Collection, Visualization, and Interpretation** • Systematic data collection and management • Data visualization techniques (graphs, charts, tables etc.) • Interpretation of experimental data and statistical analysis • Drawing conclusions based on data analysis	
Week 8	Continues	
Week 9	Continues	
Week 10	Continues	
Week 11	Continues	
Week 12	**Preparation and Submission of the Final Report** • Structuring the final report in a professionally accepted format • Writing sections include: introduction, methods, results and discussion, conclusion, and references • Ensuring clarity, coherence, and conciseness in writing • Incorporating the feedback • Preparing and delivering a professional presentation of the project • Finalizing and submitting the report (working paper) • Evaluation of the report by supervisor/supervisory committee	
Week 13	Continues	
Week 14	Continues	
Week 15	Continues	
Week 16	Continues	
Assessment		
Evaluation of the submitted report/working paper by supervisor/supervisory committee		