

Department of Food Sciences
University of the Punjab, Lahore
Course Outline



Programme	B.Sc. (Hons.) Food Science & Technology	Course Code	SWR –402	Credit Hours	3 (3-0)
Course Title	RESEARCH PROJECTS AND SCIENTIFIC WRITING				
Course Introduction					
<p>This course is designed to equip students with the skills and knowledge needed to conduct independent research and effectively communicate scientific findings. Throughout the course, students will learn the essentials of designing and executing research projects, from formulating research questions to analyzing data. Additionally, the course will focus on developing the ability to write clear, concise, and impactful scientific papers, grant proposals, and presentations. By the end of the course, students will be prepared to navigate the research process and contribute meaningfully to the scientific community.</p>					
Learning Outcomes					
<p>On the completion of the course, the students will:</p> <ol style="list-style-type: none"> 1. Demonstrate scientific writing process and its key stages. 2. Organize and compose a scientific paper. 3. Analyze and review any scientific document in terms of key message, consistency and justification. 					
THEORY					
Course Content					Assignments/Readings
Week 1	Unit-I				
	1.1 Course Overview and Expectations				
	1.2 Introduction to the course structure				
	1.3 Goals				
Week 2	1.4 Assessment criteria				
	Unit-II				
	2.1 Understanding the Research Process				
	2.1 Research methodologies				
2.2 Ethics					
2.3 Scientific method.					

Week 3	Unit - III 3.1 Selecting a Research Topic	
	3.2 Strategies for choosing a research topic	
	3.3 Defining research questions	
Week 4	Unit-IV 4.1 Literature Review	
	4.2 Importance of literature reviews	
	4.3 Conducting a thorough review	
	4.4 Synthesizing information.	
Week 5	Unit-V 5.1 Research Design	
	5.2 Experimental vs. non-experimental designs	
	5.3 Variables	
	5.4 Hypotheses.	
Week 6	Unit-VI 6.1 Data Collection Methods	
	6.2 Surveys experiments	
	6.3 Interviews	
	6.4 Observations, and more.	
Week 7	Unit -VII 7.1 Data Analysis	
	7.2 Introduction to statistical analysis	
	7.3 Data interpretation	
	7.4 software tools.	
Week 8	Unit-VIII 8.1 Research Ethics	
	8.2 Ethical considerations	
	8.3 Human subjects	
	8.4 Data privacy.	
Week 9	Unit-IX 9.1 Writing the Research Proposal	
	9.2 Structure of a research proposal.	

	9.3 Components of a research proposal.	
Week 10	Unit -X 10.1 Introduction to Academic Writing	
	10.2 APA, MLA, or other citation styles,	
	10.3 Formatting	
	10.4 Plagiarism.	
Week 11	Unit-XI 11.1 Writing the Research Paper	
	11.2 Sections of a research paper (Abstract, Introduction)	
	Methodology, Results, Discussion, Conclusion	
Week 12	Unit -XII 12.1 Effective Communication	
	12.2 Strategies for clear and concise scientific writing	
	12.3 Audience awareness.	
Week 13	Unit-XII 13.1 Oral Presentation Skills	
	13.2 Creating engaging presentations	
	13.3 Effective delivery	
	13.4 Visual aids.	
Week 14	Unit-XIV 14.1 Poster Presentations	
	14.2 Designing research findings in a poster format.	
	14.3 Presenting research findings in a poster format.	
Week 15	Unit-XV 15.1 Manuscript Submission and Peer Review	
	15.2 Preparing a research paper for publication,	
	15.3 Dealing with peer review comments.	
Week 16	Unit-XVI 16.1 The Future of Research	
	16.2 Emerging trends in research	
	16.3 Careers in academia and industry.	

Textbooks and Reading Material

1. Awan, J.A. (2009). Scientific Presentations. Unitech Communications, Faisalabad, Pakistan.
2. Khalil, S.K. & Shah, P. (2007). Scientific Writing and Presentation for Crop Sciences. Higher Education Commission, Islamabad, Pakistan.
3. Anderson, J., Durston, B.H. & Poole, M. (2002). Thesis and Assignment Writing. Wiley Eastern Ltd., New Delhi, India.

Teaching Learning Strategies

Workshops and Seminars: Conduct interactive workshops and seminars focused on various aspects of research and scientific writing, such as literature review, research design, data analysis, and manuscript preparation. These sessions provide practical insights and hands-on experience.

Guided Research Projects: Assign individual or group research projects where students can apply the principles learned in class. Provide mentorship and guidance throughout the research process, from hypothesis development to data interpretation.

Peer Review and Feedback: Incorporate peer review sessions where students review and provide feedback on each other's research proposals, drafts, and presentations. This helps students develop critical thinking skills and improves their ability to evaluate scientific work.

Writing Exercises and Assignments: Assign regular writing tasks, including literature reviews, research proposals, and mock journal articles. Provide detailed feedback on these assignments to help students refine their writing skills and understand the structure and style of scientific communication.

Assignments: Types and Number with Calendar

1. Review article / Presentation (10 marks)
2. Written Assignment (5 Marks)
3. Quizzes (5 Marks)
4. Class Participation and attendance (5 marks)

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.
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