DEPARTMENT OF AGRONOMY
Faculty of Agricultural Sciences
University of the Punjab, Lahore

Course Outline

Program	B.Sc. (Hons.) Agriculture (Agronomy)	**Course Code**	**AGR-413**	**Credit Hours**	2 (1-1)
Course Title	RESEARCH AND SCIENTIFIC WRITING				

Course Introduction

Some basic knowledge about Research, its branches and importance

To familiarize the students with Research methods, their importance and overview

Learning Outcomes

On the completion of the course, the students will:

22. Introduction of the students to the Research writing.
23. Use of different software in scientific writing in Pakistan.
24. Importance of Scientific writing
25. Special practices of the specific methods of writing.

Course Content		**Assignments/Readings**
Week 1	***Unit I*** **1.1 Overview and Concept of research**	Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.
	Practical Work Course Introduction	
Week 2	**1.2 Overview of scientific method**	Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
	Practical Work Writing of research proposal	
Week 3	**1.3 Overview scientific method and experiment**	Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.

	Practical Work Writing of research proposal	
Week 4	***Unit II*** **2.1 Planning of trials**	Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
	Practical Work Layout of field experiments	
Week 5	**2.2 Execution of trials**	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA
	Practical Work Layout of field experiments	
Week 6	**2.3 Understanding of Experimental designs**	Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.
	Practical Work Collection of Data	
Week 7	**2.4 Understanding of Experimental designs and layout**	Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
	Practical Work Tabulation and analysis of data	
Week 8	**Unit III** 3.1 Research trial observations	Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.
	Practical Work Tabulation and analysis of data	
Week 9	MID TERM EXAM	
Week 10	3.2 Collection of Data	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA

	Practical Work Tabulation and 8analysis of data	
Week 11	**3.3 Processing and analysis of data**	Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
	Practical Work Presentation of data in tables	
Week 12	3.4 Processing and analysis of data	Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
	Practical Work Presentation of data in tables	
Week 13	**Unit IV** **4.1 Measures of experimental variability**	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA
	Practical Work Presentation of data in curves	
Week 14	**4.2 Interpretation and summarization of results**	Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.
	Practical Work Presentation of data in histograms	
Week 15	4.3 Interpretation and summarization of results	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA
	Practical Work Presentation of Data in Graphs	
Week 16	**Unit V** 5.1 Types of scientific writing	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA
	Practical Work Writing of scientific paper/report	

Week 17	5.2 Developing a research proposal	Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA
	Practical Work Writing of scientific paper/report	
Week 18	FINAL TERM EXAMS	

Textbooks and Reading Material

2. Textbooks.

In the detailed course outline, one may mention chapters of the textbook with the content topics

3. Suggested Readings

3.1. Books

1. Alan G. Clewer and David H. Scarisbrick. 2001. Practical Statistics and Experimental Design for Plant and Crop Science. John Wiley and Sons, Ltd. Chichester, England.
2. Anonymous. 1988. Publications Handbook and Style Manual. ASA-CSSA-SSSA, Madison.
3. Khalil, S K. and P. Shah, 2007. Scientific Writing and Presentation. HEC, Monograph, Islamabad.
4. Martha, D. 2005. Scientific Papers and Presentations. Academic Press, San Deigo, California, USA.
5. Mead, R. 2003. Statistical Methods in Agricultural & Experimental Biology. 3rd Ed. Pak Book Corp. Lahore
6. Youdeowei, A., P. Stapleton, and R. Obubo. (eds.). 2012. Scientific Writing for Agricultural Research Scientists-A Training Resource

3.2. Journal Articles/ Reports

Note:

3. It is preferable to use the latest available editions of books. Mention the publisher & year of publication.
4. The References/ bibliography may be by the typing manual of the concerned faculty/subject. Preferably follow the APA 7th Edition publication manual.

Teaching Learning Strategies

1. White board and markers
2. Slide projector or multimedia
3. Overhead projector
4. Photocopy machine or photocopying facilities
5. Reference books

6. Journals
7. Internet (web cited literature)
8. Field Tours

Assignments: Type s and Number with Calendar

1. Assignment (10 Marks)
2. Continuous assessment (Quizzes) (10 Marks)
3. Class participation Discussion, field trip, regularity, punctuality (5 Marks)

Assessment

Sr. No.	Elements	Weightage	Details
4.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
5.	Formative Assessment	25%	Continuous assessment includes Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on activities, short tests, projects, practical's, reflections, readings, quizzes, etc.
6.	Final Assessment	40%	There is a 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 papers, research proposal development, field work, report writing, etc.