Course Title: **Research Methods and Scientific Writing**

Course Code: **SES-405**

Credit Hours: **3(2-1)**

Instructor: **Prof. Dr. Ghulam Sarwar**

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| **DESCRIPTION AND OBJECTIVES** |

The aim of this course is basically to develop understanding of the students about the write up of technical reports, synopsis and thesis and scientific projects. The precise learning of this course will enable the students to achieve these tasks successfully. This course will be helpful for students in execution of their masters and eventually doctorate research and final write up of their synopsis and dissertations. The objectives of this course are as follows:

1. This course will enable the students to conceive problem-oriented research, plan, execute and document research results.
2. Problem oriented research plan, execution and documentation of research results are discussed.
3. The students should be able to search literature, plan and execute research projects and publish research reports.

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| **INTENDED LEARNING OUTCOMES** |

This course will enable the students to conceive problem-oriented research, plan, execute and document research results. The students should be able to search literature, plan and execute research projects and publish research reports. This course will be helpful for students in execution of their masters and eventually doctorate research and final write up of their synopsis and dissertations

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| **COURSE CONTENTS** |

**Theory**

1. The purpose and kinds of research
2. General consideration and identification of the problem
3. Background reading and review of literature: Objectives, Sources, Collection and citation
4. Preparation of research project: Title, objectives, methodology, work plan and budget.
5. Scientific writing
   1. Aims, components and organizing the material
   2. Techniques of composition: Table of contents, list of tables and figures, standard abbreviation
   3. Footnoting, documentation
   4. Referencing: Alphabetical and chronological order
   5. Appendices and bibliography
6. Editing and evaluating the final draft.

**Practical**

1. Exercise of writing research proposal
2. Assigning different title to the students
3. Exercise of collecting materials from different sources on assigned topics

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| **READINGS** |

1. ASA. 1998. Publications Handbook and Style Manual. ASA, Madison, WI, USA.
2. Bates, D.J. 1994. Writing with Precision. Acropolish Books Ltd. Washington, DC, USA.
3. Blaxter, L., C. Hughes and M. Tight. 2006. How to Research. 3rd Ed. Open University Press McGraw Hill, Berkshire, UK.
4. Ghafoor, A. 2007. Manual for Synopsis and Thesis Preparation. Univ. Agri., Faisalabad, Pakistan (ISBN 969-8237-7-0). 109 p.
5. Ghafoor, A., G. Murtaza and S.I. Hussain. 2006. Fundamental of scientific communications and presentations. Allied Book Centre, Urdu Bazaar, Lahore. (ISBN 969-547-01-7). 190 p.
6. Harrad, S., L. Batty, M. Diamond and G. Arhonditsis. 2008. Students Projects in Environmental Science. John Wiley & Sons Ltd. West Sussex, England.
7. Katz, M.J. 2009. From Research to Manuscript – A Guide to Scientific Writing. 2nd Ed. Springer-Verlag, Frankfurt, Germany.
8. Kothari, C.R. 2004. Research Methodology (Methods and Techniques) 2nd Ed. New Age International Publishers, India.
9. Luellen, R.W. 2001. Fine-tuning your writing. Wise Owl Publishing Company, Madison, WI, USA.
10. Ghafoor, A., G. 2006. Manual for synopsis and thesis preparation. University of Agriculture, Faisalabad.

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| **RESEARCH PROJECT/PRACTICAL/LABS/ASSIGNMENTS** |

1. Exercise of writing research proposal
2. Assigning different title to the students
3. Exercise of collecting materials from different sources on assigned topics
4. Short research projects and laboratory assignments will be assigned to the students during the semester

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| **ASSESSMENT CRITERIA** |

Sessional: 20 % of the total theory marks (Project, Presentation, Participation and Assignment)

Project: -

Presentation: -

Participation: -

Mid Exam: 30 % of the total theory marks

Final Exam: 50 % of the total theory marks

Practical Exam: 100 % of the total practical marks