



Salahaddin University – Erbil
College of Engineering
Department of Architectural Engineering

Research Methodology

Course Book

1st semester

For
Post Graduate Students (M.Sc.)
2023-2024

Three hours per week
6 credits

Asst. Prof. Dr. Faris Ali Mustafa
B.Sc., M.Sc., and Ph.D. in Architecture

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Course Description

The course was divided into two parts, the first part covers concerns and issues related to the fundamentals of research, and addresses different research methods (such as qualitative, quantitative, hybrid, etc.), the research types, research process, research problem, research questions, research objectives, hypothesis, and literature review; the second part will focus on the subjects and detailed issues regarding the research methodology in practical steps such as research design, sampling design, data collection, processing, analysing, and interpretation of data. In addition, writing about ethical issues in research, and research communication (academic writing, presentations...etc). The presentation skills would be systematically developed through lectures, homework assignments, and term projects. The students will get an opportunity not only to learn about each other's research work but also to provide and receive feedback. The course will foster an environment of academic exchange in the multi-disciplinary field of in general and architecture in specific.

Objectives

1. To gain insights into how scientific research is conducted.
2. To help in the critical review of the literature and assess the research trends, quality, and extension potential of research and equip students to undertake research.
3. To learn and understand the basic statistics involved in data presentation.
4. To identify the influencing factors or determinants of research parameters.
5. To test the significance, validity, and reliability of the research results.
6. To help in the documentation of research results.

Expected Outcome

1. Ability to critically evaluate current research and propose possible alternate directions for further work
2. Ability to develop hypotheses and methodology for research design.
3. Ability to comprehend and deal with complex research issues to communicate their scientific results clearly for writing papers and theses.

Exam & Grading

Quizzes, assignments, and presentation, review articles: 30 %
Midterm exam: 20 %
Course annual effort: 50%
Final exam: 50%

Syllabus

- **Research...General Introduction** Week 1
- **Types of Research** Week 2

• Research Process	Week 3
Basic Overview	
Formulation of the Research Problem	
Defining the Research Problem	
• Research Problem Statement	Week 4
How to Write and Formulate Research Problem	
• Literature Review	Week 5
Literature review	
Review concepts and theories	
Objectives formulating	
• Research Hypothesis	Week 6
Hypothesis Formulation	
Sources of Hypothesis	
Characteristics of Hypothesis	
Role of Hypothesis	
Types of Hypothesis	
Test of Hypothesis	
• Research Hypothesis	Week 7
• Research Design	Week 8
• Sampling Design	Week 9
• Data Collection	Week 10
Observation Method	
Interview Method	
Questionnaires	
Case Study Method	
• Processing and Analysis of Data	Week 11
Processing Operations	
Statistics in Research	
Descriptive Statistics	
Inferential Statistics	
Elements / Types of Analysis	
Interpretation of Data	
• Writing	Weeks 12,13
Article	
Essay	
Research Paper	
Research Project	
Legislation Drafting	

Judgment Writing
Thesis
Dissertation
Book
Reviews - Book Review; Case Review

• Criteria of Good Research Week 14
Research Ethics
Validity and Reliability
Citation Rules

• Citation Methods Week 15
Foot Note
Text Note
End Note
Bibliography & Referencing

Related References

- Groat, L. N., Wang, D. (2013). *Architectural Research Methods*, 2nd Ed., John Wiley & Sons, Inc., Hoboken, New Jersey.
- Fellows R. and Liu A. (2008), *Research Methods for Construction*, 3rd Ed., Wiley-Blackwell, Oxford, UK.
- Leedy, Paul D. & Ormrod, Jeanne E., (2010). *Practical Research: Planning and Design*, 9th Ed. Boston: Pearson Education, Inc.
- Dawson, Catherine, 2002, *Practical Research Methods*, New Delhi, UBS Publishers' Distributors.
- Kothari, C.R., 1985, *Research Methodology: Methods and Techniques*, New Delhi, Wiley Eastern Limited.
- Kumar, Ranjit, 2005, *Research Methodology-A Step-by-Step Guide for Beginners*, 2nd Ed., Singapore, Pearson Education.