

OER title	Research Methodology in IS
Introduction	<p>The OER is aimed to introduce research methods in Library & Information Science (LIS). The course combines theoretical and applied research designs, methodologies and approaches to evaluation of research.</p> <p>Two reasons justify a course on research methods. First, published research in LIS will expand your understanding of the major issues in information world. In order to read scholarly literature on the topic, you will need some understanding of the main research methods employed in the field. Second, at some point in your academic and professional career, you will need to conduct your own research. You will need to employ research methods adequately if you want to use the results of your studies to make informed decisions that are less biased than guessing or intuition.</p>
Description (content of the OER)	<p>Part I: Introduction to Scientific Research</p> <p>In the first part of the course, the initial steps of the research cycle will be introduced as follows:</p> <ol style="list-style-type: none"> 1. Basic Concepts Related with Scientific Research: Main concepts such as “science,” “research”, “method”, “theory”, “inquiry” and “scientific method” will be discussed along with the main functions of science (understanding, explanation, control), basic assumptions which science is built upon (i.e., cause-and-effect relationship, induction vs. deduction) and the types of research (exploratory, descriptive, explanatory; quantitative vs. qualitative). 2. Description of the Research Question and Hypothesis Building: Research process and its basic steps, research design, research methods, variables, constructs, hypotheses, assumptions will be introduced. Two questions (what to research and how to do it) will be addressed along with the identification and the statement of the “problem”. 3. Correlation vs. Causation Explained: The distinction between these two concepts will be explained with examples and the main concepts will be defined (determinism, correlation, causation, pseudo-causation). The criteria of causation (necessary and sufficient conditions), causation diagrams, and the types of explanations (nomothetic vs. idiographic) will be summarized. 4. Conceptualization, Operationalization and Measurement: These related concepts and their role in the research design, the refinement and operationalization of concepts for research purposes, the types (through direct-indirect observations or through “constructs”) and levels (i.e., nominal, ordinal, ratio) of measurement, indices, scales and the quality of measurements (validity, reliability) will be discussed and examples will be provided. <p>Part II. Research Design, the Logic of Sampling and Statistical Tests</p> <p>The major research designs used in LIS (e.g., experimental and survey methods) will be introduced along with examples picked from LIS literature. Sampling is crucial for both parametric and non-parametric research in LIS, as the subsequent statistical tests to be applied will be based on the sampling method chosen (e.g., probabilistic vs. non-probabilistic sampling). Therefore, major concepts such as population, sampling frame, unit of observation, unit of analysis, the types of sampling methods, data analysis and selection of statistical tests to be applied to data will be introduced along with the examples (e.g., khi-square, t-tests, correlation and regression analysis).</p>

Part III: Digital Quantitative Methods for Text Analysis

Enhancement of text analysis by incorporating digital, semi-automatic approaches to the analysis of large amounts of texts. Basic concepts of statistical and visual means of representing textual content, focusing on patterns and relations of the contents of texts, and to a lesser degree on the notion of trends and developments within text collections will be introduced.

Part IV: Scholarly Publishing and Research Evaluation

The role of scholarly publications (academic journals, conference proceedings, etc.) in sharing new knowledge and understating new innovations among the scientific community. Historic and current trends in the scientific, technical, and medical publishing (STM) industry. Basic bibliometric concepts, theorems and methods. Citation indexes and other data sources. The role bibliometrics in research policy will be introduced.

Part V: Information Visualization

Graphs and visualization of bibliometric networks. Types of bibliometric networks (citation, co-citation, bibliographic coupling, word co-occurrence, coauthorship) and visualization approaches will be introduced.

Learning outcomes

Learners should be able to:

- Understand the scientific research process and get acquainted with the main concepts in research;
- Learn basic research designs and methods used in LIS to carry out research including statistical tests;
- Develop skills of analysis and evaluation of scientific research articles; and
- Understand some of the research environments where IS postgraduates can work.