

Description of “Research methodology”

Information			
Administering Department		Remote Sensing	College
Remote Sensing & Geophysics College			
Module Leader	Amni Ibraheem Mohamed	e-mail	dr.amani_altmimi@kus.edu.iq
Module Leader's Acad. Title		Professor	
Scientific Committee Approval Date		18/12/2024	Version Number 1.0

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	The aim of studying the scientific research methodology course to master's students in the Remote Sensing Department is to provide students with the knowledge and skills necessary to conduct research in an organized and reliable manner. These objectives include: Understanding the basics of scientific research: Identifying the basic concepts of scientific research such as types of research and its design. Developing research skills: Learning how to formulate hypotheses and define research objectives and research questions. Acquiring data collection and analysis skills: The ability to choose appropriate data collection tools and analyze them scientifically. Enhancing critical thinking: Encouraging students to think critically and evaluate previous literature and research results. Writing scientific reports: Learning how to write research papers and reports in a correct and documented manner. Research ethics: Understanding the ethical considerations related to conducting research, such as ensuring that participants are not harmed and ensuring scientific integrity.

	Studying this course helps students build a strong foundation for academic and scientific research in their various fields.
Module Learning Outcomes	Writing a scientific research requires following a systematic and organized methodology to ensure the quality and reliability of the research. Here are the basic steps that can be followed: 1. Choosing a topic: The topic must be appropriate and interesting, and you must have the motivation to explore it. The topic must include clear research questions. 2. Reviewing the literature: Studying previous research and studies related to the topic to gain a comprehensive understanding of what has been done previously and identifying gaps that your research can cover. 3. Defining the research problem: Formulating a question or set of research questions that you seek to answer through your research. 4. Determining objectives and hypotheses: Setting specific research objectives and hypotheses based on previous literature. 5. Choosing a methodology: Determining the method you will follow to collect and analyze data. You can choose quantitative, qualitative, or mixed methodologies depending on the nature of the research topic. 6. Data collection: Implementing your data collection plans such as questionnaires, interviews, experiments, or collecting secondary data. 7. Data analysis: Using statistical methods or qualitative analysis to analyze the collected data and draw conclusions. 8. Writing the research: Organize the research into clear sections that include:

	- Introduction: Includes clarifying the topic and research problem. - Literature review: Summarizing previous relevant research. - Methodology: Explaining how data was collected and analyzed. - Results: Presenting and analyzing the results you obtained. - Discussion: Interpreting the results and linking them to the broader context. - Conclusion: Summarizing the results and their impact on previous research and practical practice. 9. References: Record all the sources you used in the research according to the appropriate citation style (such as APA, MLA, etc.). 10. Final review: Review the research comprehensively to ensure that it is free of linguistic or scientific errors, and to ensure that the information is well organized.
--	---

Advanced Satellite Image Analysis Syllabus	
Week 1	Introduction to Scientific Research • Definition of Scientific Research and its Importance
Week 2	Types of scientific research • Basic research and applied research • Quantitative research and qualitative research
Week 3	Choosing the topic and its importance • How to choose the research topic • Defining the research problem • Formulating research questions, hypotheses and their types
Week 4	Research design • Preparing a research plan • Choosing the appropriate methodology (quantitative, qualitative and
Week 5	Data Collection Methods • Questionnaires, Interviews and Observation

	• Data Collection Tools and Their Importance
Week 6	Data Analysis • Quantitative Analysis Methods (Basic Statistics) • Qualitative Analysis Methods
Week 7	Writing a research report • Scientific research structure (introduction, systematic review, results, discussion, conclusion)
Week 8	Review and Citations • The Importance of Citing References • Different Citation Rules and Styles (APA, MLA, etc.)
Week 9	Ethics in Scientific Research • Rules of Ethics in Research • Rights of Research Participants
Week 10	Presenting and discussing results • How to present results effectively • Discussing results and their impact
Week 11	Scientific Research in the Digital Age • Using Technology in Research • Searching for Sources and Information via the Internet
Week 12	Final Review and Suggestions for Future Research • How to Make Recommendations from Research Findings • Identifying Future Research Gaps
Week 13	Electronic plagiarism in scientific research • An overview of electronic plagiarism
Week 14	Project Presentations
Week 15	Pre-final exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	"Research Design: Qualitative, Quantitative, and Mixed	No

	Methods Approaches" Creswell, J.W	
Recommended Texts	"The Craft of Research" Booth, W.C., Colomb, G.G., and Williams, J.M.	No
Websites		