



الجامعة الوطنية - السودان
National University - Sudan

Postgraduate Diploma in Research **Methodology**



1. Introduction and Rationale

Introduction

The Postgraduate Diploma in Research Methodology at the National University of Sudan (DRM) is designed to equip students with essential knowledge and practical skills in research methodology. This program provides a comprehensive understanding of research design, data collection, statistical analysis, and ethical practices, tailored to address local, national, and global research challenges. It offers a supportive and innovative learning environment that integrates both theoretical and applied aspects of research. Furthermore, the inclusion of biomedical research ethics as a core component ensures that students are prepared to navigate the ethical complexities inherent in research involving human subjects.

In Sudan, there is an urgent need for skilled researchers to address the nation's pressing challenges. The country continues to experience significant disparities in health outcomes, resource distribution, and policy implementation. Ongoing economic instability, development gaps, and recent crises, including the COVID-19 pandemic and the 2023 conflicts, have exposed critical weaknesses in health and social systems. These challenges underscore the importance of cultivating a research culture that prioritizes evidence-based solutions to inform decision-making, enhance public health outcomes, and drive sustainable development. Developing local research capacity is crucial to addressing Sudan's specific needs and contributing to global scientific advancements.

The curriculum adopts a competency-based, student-centred approach, integrating adult learning theories and active participation through seminars, workshops, and project-based learning. The program focuses on building proficiency in research tools and techniques while promoting critical thinking and independent inquiry. By the end of the program, graduates will be equipped to contribute effectively to academic, professional, and community research efforts, fostering innovation and addressing the pressing needs of Sudan and beyond.

The National University of Sudan is a private educational institution located in Khartoum, Sudan. Established in 2005, it originally began as the National College for Medical and Technical Studies before being upgraded to a university in 2014. The university offers a diverse range of undergraduate and postgraduate programs across fields such as medicine, Dentistry, pharmacy, Physiotherapy, Nursing, Radiography, engineering, business, international relations, and information technology.

With a commitment to academic excellence, the university has gained recognition both nationally and internationally. It is accredited by the Ministry of Higher Education and Scientific Research in Sudan and is the only Sudanese private university to hold accreditation from the British Accreditation Council. The institution aims to provide high-quality education and foster innovation, preparing students to excel in their respective fields.

The Faculty of Medicine and Surgery at the National University of Sudan provides high-quality medical education and training. Established in 2005, it offers a Bachelor of Medicine, Bachelor of Surgery (M.B.B.S.) degree, preparing students for careers in healthcare.

Rationale

The Postgraduate Diploma in Research Methods at National University Sudan addresses the critical need for building research capacity in a country facing significant challenges in health, economic, and social systems. Sudan's complex health landscape, compounded by disparities in resource distribution and the strain caused by recent crises such as the COVID-19 pandemic and conflicts in 2023, underscores the urgency for high-quality, evidence-based research. This program is designed to equip professionals with the necessary skills and knowledge to conduct impactful research that informs policy, improves public health outcomes, and contributes to sustainable development. By fostering a culture of rigorous and ethical research, the program aims to bridge existing gaps and empower professionals to tackle Sudan's unique challenges through innovative and scientific approaches.

Vision

To be a leading program in research methodology education, fostering a culture of evidence-based inquiry, ethical practices, and innovative research that addresses Sudan's national priorities and contributes to global scientific advancements

Mission

Provide high-quality education and practical training in research methodologies. Equipping students with the knowledge, skills, and ethical foundation required to conduct impactful research that informs policy, improves health and social outcomes, and addresses contemporary challenges in Sudan and beyond.

Goal

To produce competent, ethical, and innovative researchers capable of designing, conducting, and analyzing studies that contribute to evidence-based solutions for local, national, and global issues.

2. Learning Outcomes

Upon successful completion of this program, graduates will be able to:

- Demonstrate a comprehensive understanding of research principles, designs, and methodologies applicable to diverse disciplines.
- Apply research methods: conduct systematic data collection and analysis using appropriate quantitative and qualitative research techniques.
- Utilize research software and tools to manage data and facilitate analysis.
- Maintain ethical principles in research, including informed consent, confidentiality, and the prevention of misconduct.
- Formulate and address research problems, identify gaps, design studies, and develop research questions, hypotheses, and objectives to address relevant issues.

- Communicate research findings clearly and effectively through written reports, visualizations, and oral presentations.
- Promote evidence-based inquiry, critical thinking, and innovation in academic and professional research settings.
- Enhance skills in leadership, collaboration, and project management to support career growth and professional advancement in research and related fields.

3. Program evaluation

The program evaluation includes (1) Trainers' feedback form, (2) Trainees' program evaluation form, (3) External examiners' report, (4) accrediting bodies and authorities.

4. Admission requirements:

Applicants must satisfy the general regulations set by the Faculty of Graduate Studies of the National University of Sudan for registration for a postgraduate diploma degree.

Eligible candidates are holders of a Bachelor's degree

5. Study Programme

Total Credit Hours = 30

			Contact Hours/week		
	Course	Code	Credit Hours	Theory	Practical
Semester 1					
1	Theoretical Research and Logical Framework البحوث النظرية	(TRF 611)	3 (3+0)	3	0
2	Quantitative Research Design منهجية البحث الكمي	(QND-612)	3 (2+1)	2	2
3	Qualitative Research Design منهجية البحث النوعي	(QLD-613)	3 (2+1)	2	2
4	Statistics الإحصاء	(BIO-614)	3 (2+1)	2	2
5	Research Ethics أخلاقيات البحث العلمي	(ETH-615)	2 (1+1)	1	2
Total			14	10	8

Semester 2					
	Applied Data Analysis and Software تحليل البيانات والبرمجيات	(ADS-621)	2 (0+2)	0	4
1	Artificial Intelligence and Research الذكاء الاصطناعي في البحث العلمي	(AIR-622)	2 (1+1)	1	2
2	Data Collection and Fieldwork Activities جمع البيانات وأنشطة العمل الميداني	(DCF-623)	2 (1+1)	1	2
3	Critical Appraisal and Secondary Research التقييم النقدي والبحث الثانوي	(CAS-624)	2 (1+1)	1	2
4	Scientific Writing and fund raising الكتابة العلمية وتمويل البحوث	(SCW-625)	2 (1+1)	1	2
5	Dissertation and Manuscript الطروحة و الورقة العلمية	(DIM-626)	7 (0+7)	0	14
Total			15	4	22

Semester One

Course Name: Theoretical Research and Logical Framework

Course Code: (TRF-611)

Credit Hours: 3 CHs

Introduction and Rationale

Theoretical research and logical framework development form the intellectual backbone of rigorous scientific inquiry. This course is designed to equip students with the conceptual and analytical skills required to construct sound theoretical foundations, develop coherent research logic, and translate complex problems into structured research frameworks. Emphasis is placed on theory building, conceptual models, logical relationships among variables, and the use of logical frameworks to guide research planning, implementation, and evaluation. By integrating theory with methodological reasoning, students will develop the capacity to design robust, ethically sound, and policy-relevant research studies applicable to health, social sciences, and development contexts.

Course Name: Quantitative Research Design

Course Code: (QND-612)

Credit Hours: 3 CHs

Introduction and Rationale

Quantitative research is a critical component of scientific inquiry, providing the foundation for evidence-based decision-making in various fields, especially health and social sciences. This course aims to equip students with the knowledge and skills necessary to design, conduct, analyze, and report quantitative research effectively. Through a systematic exploration of research methodologies, data collection techniques, and statistical tools, students will learn to address research questions with precision and rigor. EDRMas will also be placed

on ethical considerations to ensure integrity in research practices. This course is essential for developing a thorough understanding of quantitative research and its applications in real-world contexts.

Course Name: Qualitative Research Design

Course Code: (QLD-613)

Credit Hours: 3 CHs

Introduction and Rationale

Qualitative research serves as a foundational pillar of scientific inquiry, offering a unique lens through which complex human behaviours, experiences, and social phenomena can be explored. This course introduces students to the principles and practices of qualitative research, blending theoretical frameworks with practical application. By mastering the art of crafting research questions, conducting interviews and observations, analyzing qualitative data, and presenting findings, students will be equipped to make meaningful contributions to diverse fields such as social sciences, healthcare, education, and policymaking. This course is essential for fostering critical thinking, methodological rigor, and creativity in qualitative research.

Course Name: Biostatistics

Course Code: (BIO-614)

Credit Hours: 3 CHs

Introduction and Rationale

Biostatistics has become one of the most stimulating areas of applied statistics. Biostatisticians are trained in the skilled application of statistical methods to the solution of problems encountered in public health and medicine. This course introduces the student to the principles of statistics and the concept of clinical trial design and analysis. Students will be able to explain the concept of variables, data description; probability and concepts of descriptive and in-

ferential statistics; and to demonstrate basic knowledge of application of data analysis in applied health sciences. Student will be able to make decisions about appropriate use of descriptive and inferential statistics according to the type of data and study design for answering a research question. This is the foundation for the research methodology courses as well as the research project.

Course Name: Research Ethics

Course Code: (ETH-615)

Credit Hours: 3 CHs

Introduction and Rationale

Research ethics form the cornerstone of responsible scientific inquiry and practice. It provides the framework for conducting research that respects human rights, ensures the safety and well-being of participants, and upholds scientific integrity. This module introduces students to the principles, regulations, and applications of ethics in medical research. By understanding topics such as informed consent, confidentiality, risk assessment, and the role of ethics committees, students will gain the expertise to design and conduct ethically sound studies. This module is essential for cultivating ethical awareness and adherence in medical research across diverse contexts.

Semester Two

Course Name: Applied Data Analysis and Software

Course Code: (ADS-621)

Credit Hours: 2 CHs (longitudinal course-integrated with other courses)

Introduction and Rationale

Software tools for research and statistical analysis have become indispensable in modern research workflows. Alongside statistical analysis, the ability

to calculate sample sizes accurately and perform efficient literature reviews is critical to conducting high-quality research. This course equips students with hands-on experience using tools for statistical analysis, sample size calculation, and literature management. With practical applications in real-world research scenarios, this course ensures students are prepared to manage datasets, design studies, review the literature, and present findings effectively, all while adhering to ethical guidelines.

Course Name: Artificial intelligence in research

Course Code: (AIR-622)

Credit Hours: 2 CHs

Introduction and Rationale

The integration of Artificial Intelligence (AI) into research has revolutionized traditional methodologies, providing researchers with innovative tools to enhance data analysis, pattern recognition, and decision-making processes. AI is revolutionizing various domains, from scientific discovery and social sciences to healthcare and business. In this context, the Artificial Intelligence in Research course, designed for postgraduate students in Research Methodology, aims to provide a comprehensive understanding of AI concepts and their application in research settings. This course will offer the potential to address these challenges by automating data analysis, providing advanced predictive models, and uncovering insights that may not be immediately apparent

Course Name: Data Collection and Fieldwork Activities

Course Code: (DCF-623)

Credit Hours: 2 CHs

Introduction and Rationale

The Data Collection and Fieldwork Activities course within the Postgraduate Research Methodology Diploma is designed to equip students with the neces-

sary skills, knowledge, and techniques to effectively collect data and conduct fieldwork in diverse research contexts. Data collection is a foundational element in any research process, as it directly influences the quality, validity, and reliability of research outcomes. This course is integral to the postgraduate research methodology framework, offering students both theoretical insights and practical skills for designing, executing, and analyzing data collection processes in their respective research projects.

Course Name: Critical Appraisal and Secondary Research

Course Code: (CAS-624)

Credit Hours: 2 CHs

Introduction and Rationale:

The ability to critically appraise research is an essential skill for postgraduate students, researchers, and practitioners across various disciplines. As research methodologies evolve and the body of scientific literature expands, it becomes increasingly important for professionals to evaluate the quality, reliability, and relevance of research findings. The Critical Appraisal course, as part of the Postgraduate Research Methodology Diploma, aims to equip students with the necessary tools and frameworks to assess academic research systematically. By focusing on the critical analysis of primary research articles, students will develop the ability to assess research quality, identify methodological flaws, and understand the implications of research findings for real-world applications.

The course will encompass different research designs, quantitative and qualitative methodologies, statistical analyses, and the ethical considerations involved in conducting and appraising research. Ultimately, students will gain the expertise to navigate the vast body of literature with confidence and make well-informed decisions based on sound evidence.

Course Name: Scientific Writing and Fund Raising

Course Code: (SCW-625)

Credit Hours: 2 CHs

Introduction and Rationale

Scientific writing is an essential skill for postgraduate researchers as it facilitates effective communication of research findings within the scientific community. Writing for scientific purposes demands clarity, precision, and adherence to certain standards, which ensures that research contributions are well understood and easily reproducible by others. In the context of a Postgraduate Research Methodology Diploma, a course on scientific writing equips students with the necessary tools to write effectively, produce publishable work, and present their research in a structured and coherent manner.

This course aims to provide a comprehensive understanding of the principles of scientific writing, from understanding research objectives to drafting, revising, and publishing research papers. With an emphasis on best practices in writing, citation, and communication, this course will allow students to master the skills required for writing in a scientific and academic context.

Course Name: Dissertation and Manuscript

Course Code: (DIM-626)

Credit Hours: 4 CHs

Introduction and Rationale

The Dissertation and Manuscript Course in a Research Methodology Postgraduate Diploma is designed to guide students through the essential stages of conducting high-quality research. The course provides a comprehensive understanding of research design, data collection, analysis, and presentation in a structured format. It is an advanced-level course that emphasizes both theo-

retical and practical aspects of research, focusing on scholarly writing and the production of a thesis or manuscript that meets academic standards linked with the ability to conduct meaningful research and communicate findings effectively is critical for academic and professional success. The culmination of the course will be the submission of a well-researched thesis or manuscript that contributes to existing knowledge in the field of study.

5. Human Resources

- One Professor
- One Associate Professor
- Two Assistant Professors
- Two Lecturers
- one Technical Staff

6. Facilities

Lecture Rooms:

- One Lecture Room: 70 seats
- 3 Tutorial room: 20 seats each

Laboratories:

- Computer lab

Libraries:

- University Main Library
- E-library

7. Duration of the Programme

- Two Semesters = 27 weeks = 27 Credit Hours (

8. Teaching Modules

- Lectures; seminars; tutorials

- Interactive learning: group discussion; self-directed learning; journal clubs; problem solving sessions-role play
- Practical works: field work
- Hands-on training in statistics software referencing surveys
- On-campus workshops

9. Language of Instruction

- English
- Other/ local language for communication with community leaders and community

10. Examinations Regulations

Abide by the examination rules and procedures of the Graduate Studies of the National University-Sudan.

11. Assessment

- Continuous Assessment: 40%
- Final Examination: 60%

Written examinations

1. Type-A MCQs (best of four)
 - » Number: (60-100) MCQs
 - » Duration: one minute per MCQ.
2. Extended Matching Questions (R-Type EMQs)
 - » Number: 20-30
3. Duration: 1.5 for each question.

4. Case scenario

Practical examinations

- Lab-based exams
- Projects

Grading System

A+ (90-100) A (80-89) B+ (75-79) B (70-74) C+ (65-69) C (60-64) F (<60)

12Award of the Degree

The Scientific Council of the National University-Sudan, based on the recommendation of the Board of the Faculty of Graduate Studies and Scientific Research, after fulfilling requirements of the Faculty Board of Faculty of Medicine and Surgery, shall award the successful candidate:

Higher Diploma in Research Methods

Research Methodology



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