



LEADING THE WAY
KHALĪFAH • AMĀNAH • IQRĀ' • RAHMATAN LIL-ĀLĀMĪN
LEADING THE WORLD



AN INTERNATIONAL AWARD-WINNING INSTITUTION FOR SUSTAINABILITY

DEPARTMENT OF BASIC MEDICAL SCIENCES
KULLIYAH OF MEDICINE
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

RESEARCH METHODOLOGY STUDY GUIDE

Academic Session 2022/2023

Updated: March 2023

MASTER OF MEDICAL SCIENCES,
MASTER OF HEALTH SCIENCES
&
PhD IN HEALTH SCIENCES

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Any absence due to sickness or any unforeseen circumstances must be notified to the course coordinators as soon as possible and must be supported by suitable documentation e.g. sick certification

RESM 7130/8130

Directory of Course Instructors

No.	Name	Email	Department
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6	Asst. Prof. Dr. Islah Munjih B. Ab. Rashid	islah@iium.edu.my	Surgery, KOM
7	Assoc. Prof. Dr. Norlelawati Bt. A. Talib	noleata@iium.edu.my	Pathology & Laboratory Medicine, KOM
8	Assoc. Prof. Dr. Zamzil Amin B. Asha'ari	zamzilamin@iium.edu.my	ORL-Head & Neck Surgery, KOM
9.	Asst. Dr. Yusoff Sharizal B. Yusoff Azmi Merican	ysharizal@iium.edu.my	Department of Basic Medical Sciences, KOM
10.	Asst. Prof. Dr. Norlinda Abdul Rashid	anatomi@iium.edu.my	Basic Medical Sciencefor Nursing (BMSN)

Section 1: Course Synopsis

This course exposed the students to the principles and conduct of responsible research and innovation. Students will be taught the essential tools of research planning such as literature surveys, engagement with the community or end users to identify the real-world problem and practical solutions, planning for data collection, and planning for statistical analysis. They will also be taught on writing an impactful research proposal and to be familiarised with research ethics and safety.

Ability to conduct research properly is important to support University's responsible research agenda. The course is planned as a workshop to give the flexibility to the participant to attend the whole course within a few days rather than a fixed weekly classes. Students were taught the importance to engage with the end-users or the target community to discover their real need and relevant solutions to their problems, At the end of the course, with the knowledge and skill imparted, the participants can plan and strategise the best method to achieve their research objectives creatively, innovatively and responsibly.

Section 2: Learning Outcome

At the end of the course, the students should be able to:

1. Describe the principles of responsible research and innovation. Appraise and apply the knowledge acquired in research works.
2. Justify and summarise conceptual framework using solution-based approach.
3. Plan and strategise best study design, sampling technique, sample size, data collection and statistical analysis
4. Adhere to ethical guidelines and policies in research
5. Prepare and defend research proposal

Section 3: Teaching Format and Guidelines

1. Lecture
2. Practical
3. Self directed learning

Section 4: Course Assessment

Research Proposal	100%
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Section 5: Course Content

No.	Content
1.	Introduction to responsible research and innovation <ul style="list-style-type: none">• Why we do research?• What is responsible research and innovation?• Concept of causality
2.	Problem statement <ul style="list-style-type: none">• Searching information in medical science• Bibliographic management• Summarising literature review• Identify real-world solutions• Engagement with target population to identify the need• Conceptual framework
3.	Formulating hypothesis and objective
4.	Research design I - Observational <ul style="list-style-type: none">• Cross-sectional study• Case-control• Cohort
5.	Research design II - Experimental study
6.	Sampling technique & sample size 10 <ul style="list-style-type: none">• Sampling technique• Sample size calculation
7.	Planning for data collection
8.	Planning of statistical analysis
9.	Safety in research (biological, chemical and physical)
10.	Biosecurity
11.	Managing research
12.	Ethic in research
13.	Writing research proposal
14.	Proposal presentation

Section 6: Learning Resources

Required Textbook

1. Ab Rahman, J. (2015). *Analysing Research Data Brief Guidelines for Methods and Statistics in Medical Research* (pp. 35-101): Springer Singapore.
2. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications

Recommended Textbook

1. Altman, D., Machin, D., Bryant, T., & Gardner, M. (Eds.). (2013). *Statistics with confidence: confidence intervals and statistical guidelines*. John Wiley & Sons.
2. Greenhalgh, T. (1997). How to read a paper: The medline database. *BMJ* 15(7101): 180-183.
3. Hill, A. B. (1965). The environment and disease: Association or causation? *Proc R Soc Med* 58: 295-300.
4. Leiner, F., Gaus, W., Haux, R., Gregori, P. K., & Wagner, G. (January 14, 2003). *Medical data management* (1st Ed.). Springer; # ISBN-10: 0387951598, # ISBN-13: 978-0387951591
5. Paul D., Leedy, Ormrod, J. E., & Johnson, L. R. (2014). *Practical research: Planning and design*. Pearson Education