

# NS5001: RESEARCH METHODOLOGY AND ETHICS

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## Effective Term

Semester B 2024/25

## Part I Course Overview

### Course Title

Research Methodology and Ethics

### Subject Code

NS - Neuroscience

### Course Number

5001

### Academic Unit

Neuroscience (NS)

### College/School

College of Biomedicine (BD)

### Course Duration

One Semester

### Credit Units

3

### Level

P5, P6 - Postgraduate Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

Nil

### Equivalent Courses

BMS8001 Research Ethics and Methodology

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

This course aims to provide an overview of the fundamental elements of research ethics and methodology, which are essential in the conduction of biomedical research. Through the completion of this course, students are going to learn the definition of research ethics and its related issues and research methods to manage valid data with high integrity, and they will learn how important it is to take responsibility for research results and publication. In addition, students are going to learn how to obtain the essential knowledge of biomedical research, the effective method and design of research experiments, the precise quantitative and qualitative analysis of data, and the impactful presentation of research reports. Through discussions in formal forums among students, they will broaden their knowledge and expertise, improve their presentation skills regarding their research findings, and further share their learning experiences with their peers and academic staff.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Learn important issues and criticism in research ethics in the conduction of experiments and the analysis of research data.	10	x	x	x
2	Formulate hypothesis and identify gaps of current knowledge	10	x	x	
3	Apply different methodologies to address the biological questions	10		x	x
4	Present and discuss scientific findings effectively	10	x	x	x
5	Develop critical interpretation of scientific data	35	x	x	x
6	Communicate idea effectively through writing	25		x	x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture & Group work	Class activities are made up of lectures and group works. The latter are used as a platform for reflective and interactive learning among students and instructors or research supervisors. Activities include, proposal writing, presentation, group discussion and debate, and critique of the research design, data, and methodology of selected published works in general.	1, 2, 3, 4, 5, 6	

**Assessment Tasks / Activities (ATs)**

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Proposal writing, Presentation, group discussion, critique etc.	1, 2, 3, 4, 5, 6	100

**Continuous Assessment (%)**

100

**Assessment Rubrics (AR)****Assessment Task**

Presentation, group discussion, critique etc. (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

**Criterion**

Ability to show the learning progress, analyse and express the synthesis of ideas

**Excellent**

(A+, A, A-) Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

**Good**

(B+, B, B-) Substantial performance on all CILOs. Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

**Fair**

(C+, C, C-) Satisfactory performance on the majority of CILOs possibly with a few weaknesses. Being able to profit from the course experience; understanding of the subject; ability to develop solutions to simple problems in the material.

**Marginal**

(D) Barely satisfactory performance on a number of CILOs. Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

**Failure**

(F) Unsatisfactory performance on a number of CILOs. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature

**Assessment Task**

Presentation, group discussion, critique etc. (for students admitted from Semester A 2022/23 to Summer Term 2024)

**Criterion**

Ability to show the learning progress, analyse and express the synthesis of ideas

**Excellent**

(A+, A, A-) Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

**Good**

(B+, B) Substantial performance on all CILOs. Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

**Marginal**

(B-, C+, C) Satisfactory performance on the majority of CILOs possibly with a few weaknesses. Being able to profit from the course experience; understanding of the subject; ability to develop solutions to simple problems in the material.

**Failure**

(F) Unsatisfactory performance on a number of CILOs. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature

**Part III Other Information****Keyword Syllabus**

Research ethics, research design, research methodology, quantitative and qualitative methods and analysis, research writing and presentation

**Reading List****Compulsory Readings**

Title	
1	Nil

**Additional Readings**

Title	
1	Lewis Vaughn, Bioethics: Principles, Issues, and Cases 4th Edition, 2022
2	Paul Leedy and Jeanne Ormrod, Practical Research (10th edition), Pearson, 2012
3	Rowena Murray, How to Write a Thesis (3rd edition), Open U Press, 2011
4	Tony Greenfield (Ed), Research Methods for Postgraduates (2nd edition), Arnold, 2009
5	Wayne C Booth et al, The Craft of Research (3rd edition), Publ. Chicago U Press, 2008
6	Online learning materials: Provided via University computer network