GERM – 352

S04

18/12

Data collection

Core types of data

Data collection methods

Steps

Integrity & ethics

S09 29|12

Guidelines for Writing & Preparing a Thesis at MIST
by Zaynul Sir

	Masters	PhD	B.Sc
U.S	Thesis	Dessertation	
U.K	⟷		
MIST	Thesis	Thesis	Thesis

At MIST

118 guidelines, 25 templates

Basic → 8 C's
[1] Clear
[2] Correct → Don't X → Do not
[3] Complete
[4] Concise
[5] Conform → varsity formatting
[6] Consistent
[7] Curtesy → no superlatives of praise; humble
[8] Common-sense

S10

01/01/2026

Kaleidagraph

S11

05/01

S12 08/01

Research Proposal (RP)

Expression of Interest (EOI) on Statement of Intent (SOI)

Research topic → broader sense, field
title → narrowed down

Introduction → 1.1 Background (of the study)
All chapters except introduction would contain "Introduction" as N.1

- interested group (scope of the study, target grp, stackholders)
- how much is known
- what's missing
- why now

Research questions → objectives (all should be achieved)

Review literature → Chapter 2

- Intext refencing (within chapters; Author (year))
- Detailed " - at the end of paper
- include eqns in lit. review then refer in following chapters (e.g., using eqn 2.X)

Describe methodology

- whether qualitative, quantitative, or mixed
- data collection techniques, analysis methods, ethical considerations

Discuss expected contributions

- improve best practices
- improve policymaking decisions
- strengthening a theory on model
- ...

Add a timeline

Budget cost estimation

P.D
↙
P.I → Principal Investigator

ToR → Terms of Reference

- for each item, include cost
- justify why necessary
- source

References

- Use consistent style

S13

19/01

Modified IMRAD Format

don't put introduction

All 5 chapters shall begin w/ sub section 1. General

S14 22/01

Search vs Research

Evolution vs. Revolution

↳ discovery or interpretation of facts → pagen to mobile

↳ revision of accepted theories → 256k pendrive to TB

Midquiz (~ 40 marks)

Journal reading → write abstract (150 words)

→ title

→ keywords

Title given → narrow down

→ fix/ connection

Rough / midterm 28/01

Title: max 150 chars

Abstract: no citation, no eqn, no table, no figure, no extra info.

→ One para,

1-2 lines → intro
3-4 lines → explain recent relevant problems
2-3 " → main obj of the research
4-5 lines → explain methodology, design, modeling, experimental setup
4-5 lines → present results & findings
2-3 lines → conclusion

Keywords: no separator ??

Practice #448

Title: Effect of land-use change on runoff in Dhaka

Keywords: land-use; runoff; urban growth; SCS-CN; water table fluctuation; hydrological forcast; water cycle

S15 19/02

Data analysis

→ Understand
→ Preparation
→ visualization

Outliers → inconsistent data point

Univariate analysis → analyze one var at a time

S16

26/02

Bivariant, multivariant analysis

↳ tool: ANOVA (short for Analysis of variance)

S17 05/03

Research Misconduct & Ethics

Misconduct — unacceptable or bad behavior

Ethics — morally right/wrong

lines to not cross

" must " "

Ethical dilemma

Governing paroms of research ethics:

- Openness
- Objectivity
- Confidentiality
- Avoiding plagarism
- Honesty & integrity
- Care of lab items

Misconduct vs fraud

Misconduct instead of fraud is used in scientific research

Identification of research misconduct

1. Significant departure from accepted prac
2. Committed knowingly, intentionally, or recklessly
3. must be proved

50% chance that allegation is true

Type of research misconduct

- Improperly appropriating the intellectual property
- Compromise or slow down progress
- Corrupt integrity of record

Defⁿ — fabrication, falsification, or plagiarism

Fabrication - fake creation

what — act of making up data
when — experiment w/ personal
How — artificial inflation
—-

Completely invented
Never collected
Fake survey res
Create false evidance

Falsification - false modification

Manipulating research materials
Excluding unfavored data

Real data altered
Modified (but collected)
Delete unfavored
Distort real evidence

Plagiarism

Appropriation of another person's idea, processes, results w/o giving appropriate credit

Self plagiarism

own previously published text & make it look brand new

Deliberate interference

Intentionally causing material harm

Reasons

- Academic pressure
- Publication pressure
- ...

Consequences

- Dismissal
- Blacklisted
- Rejected grant

Ethical issues in publishing the research

Ethical issues in data collection (e.g., through questionnaire)
issue through online - data stratification

- Voluntary participation — Opt in/out any time
- Informed consent — know risk, benefits, funding
- Annonymity — Data not shared; not collected personal
- Confidentiality — ...
- - -

Unethical experiment

Five principles for building strong foundation

1. Trust
2. self policing
3. A witness to possible misconduct has an obligation to act — Kobo Tool Box
4.
5. Allegation, once made, should be handled at institution level

Responsibility of supervison

Four key ethics

Author — made a significant intellectual obligation
- analysis & interpretation
- Drafting
- Approved final version
- Agreement to be accountable — medical

} IEE

Authorship issues

1. Guest Authorship
   Didn't contribute : but added for easy approval or increase credibility
2. Gift Authorship
   May have an association but doesn't satisfy the above criteria
3. Ghost Authorship
   Should have been recognized but not recognized
   Even if that person is not bothered

Plagarism

Multiple publication

Salami publication

would form one meaningful paper but sliced into multiple

AI