

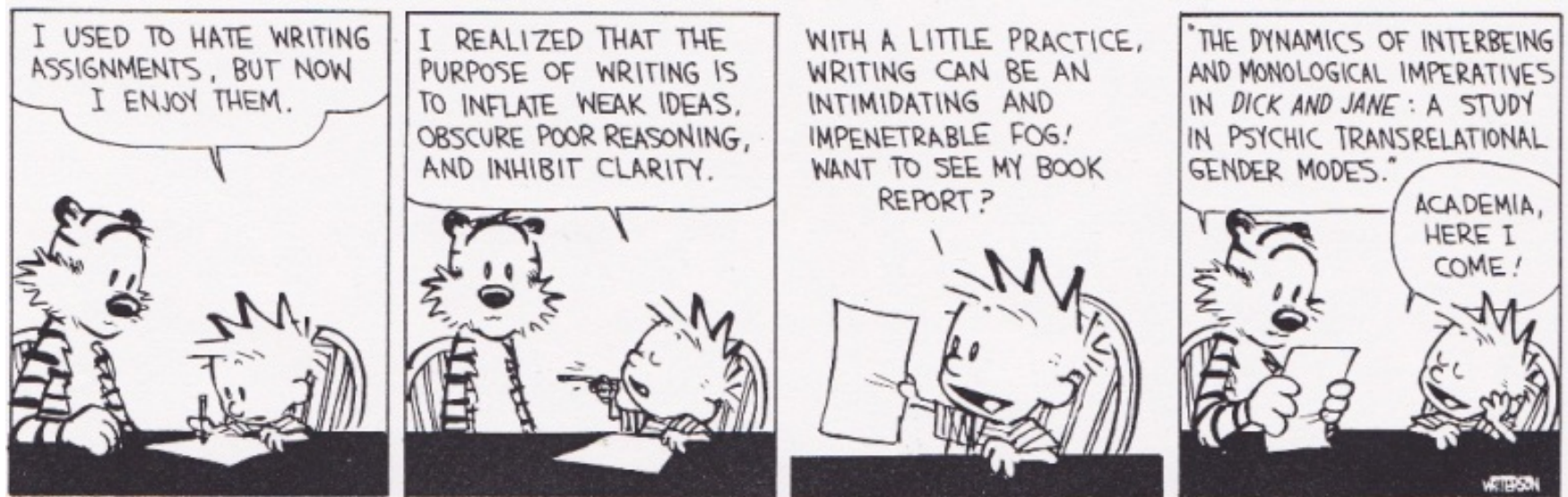
OVERVIEW OF SCIENTIFIC WRITING FOR THE CAPSTONE PROJECT

203A

26 September 2018

Experience with scientific writing?

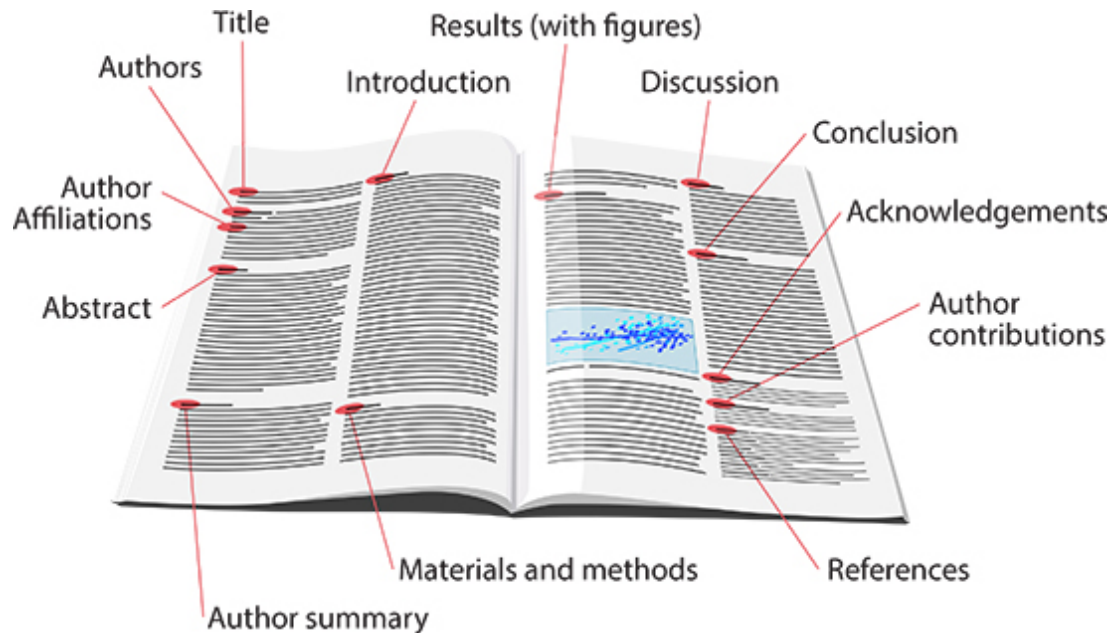
- How is it different?
- What was most challenging?
- What lessons did you learn?



Characteristics

- Written objectively; devoid of editorializing
- Statements are supported by data
- Writing style is clear, concise and straightforward
- Often organized with pre-defined sections and a recommended flow = structure

Core sections of a scientific article



- Abstract
- Background
- Methods
- Results
- Discussion
- References

These sections are key components of the three major capstone assignments

Capstone proposal part I (fall)

- Background
- Research question & aims

Capstone proposal (winter)

- Methods

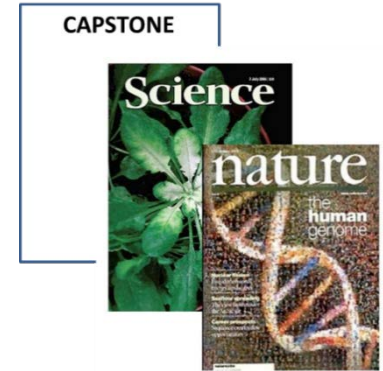
Capstone final product (summer)

- Results
- Discussion
- Abstract

All assignments include references in Lancet format.

Some differences between the capstone and published papers

- Proposal Background section will be longer = literature review
- Final Background section will be shorter like a manuscript (i.e. 3-4 succinct paragraphs)
- Research question and aims are included in the body of your paper
- Capstone progresses from future tense to past tense (proposal → fully executed project)
- Other modifications, as needed: how to reference a parent study, if your project changes



Seven accepted methodologies

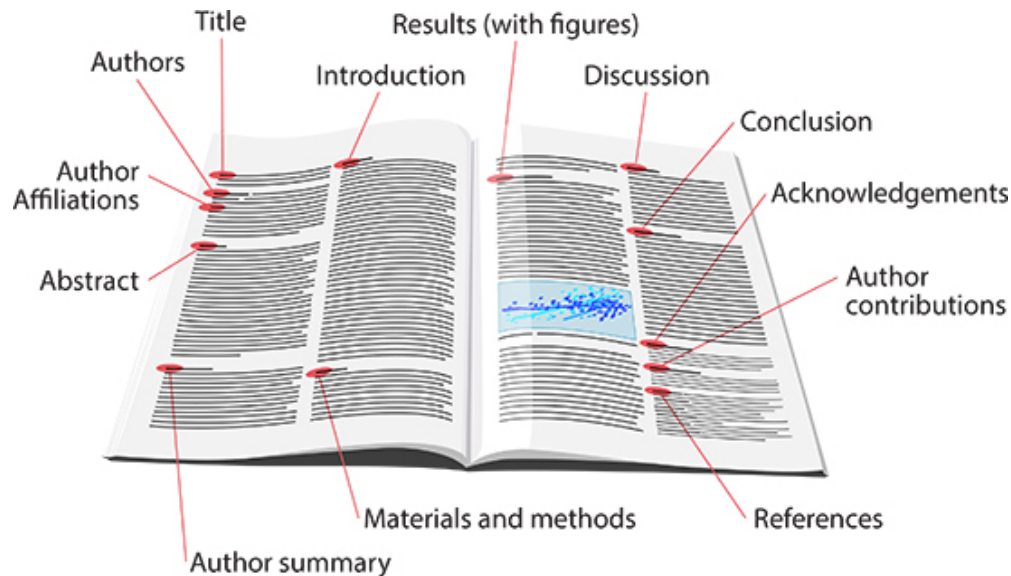
- Quantitative
- Qualitative
- Cost-effectiveness
- Systematic review
- Policy analysis
- Monitoring & evaluation
- Lab-based

*mixed methods will be considered
by 203 faculty

**Capstone project
information
guidelines**

*will be posted to 203
“Resource Documents”
folder on Moodle*

Anatomy of your capstone (in the order that you will write them)



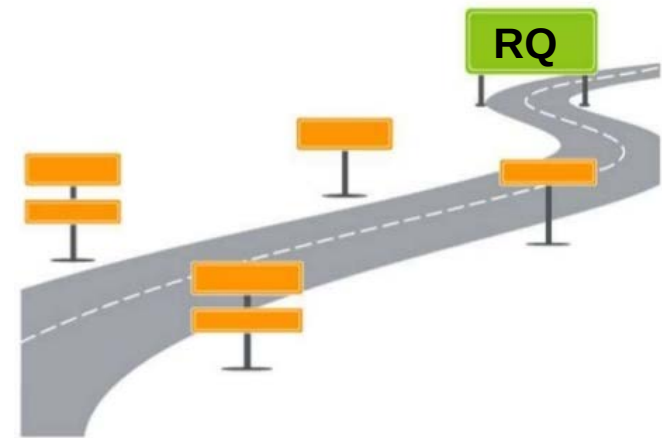
- (Research question)
- Background
- Methods
- Results
- Discussion
- Abstract

Background

- Provides a synthesis of the current state of the evidence/context
- Pinpoints activities that must be conducted to move the field forward
- Sets the stage for why your research is important and novel

Background: general organization

- **What we know:** synthesis of existing concepts and data (from broad to specific)
- **What we don't know:** what are the research gaps
- **Why we did this study:** how does it intend to fill those gaps
- Concludes with research question and specific aims



A non-specific research question can lead to poor writing and organization.

Methods

- Describes how you will collect, generate and analyze your data
- Provides enough information to allow others to replicate (and evaluate) your study

Methods: general organization

- (Parent study overview)
- Study design
- Setting
- Participants/Sample
 - Inclusion/exclusion criteria
 - Recruitment
 - Sample size
- Data collection
 - Variables and measurement
 - Time frame
 - Data collection procedures
- Analysis Plan
 - E.g. biostats, theoretical frameworks, software, etc.
- Ethical considerations
 - IRB
 - Consenting and confidentiality, etc.

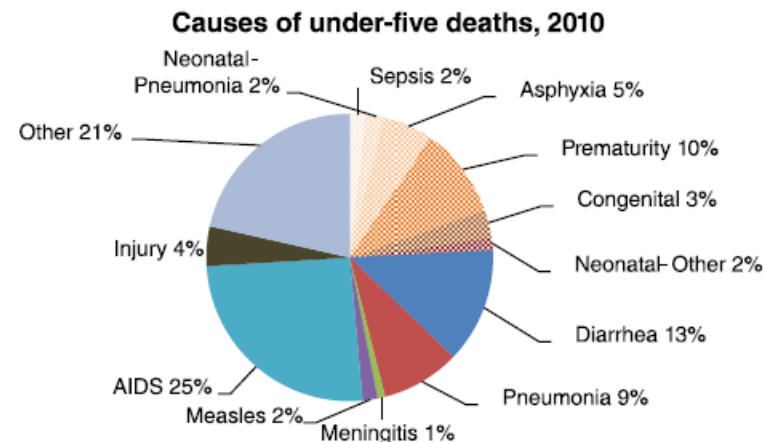
Results

- Written objectively with no interpretation of the findings
- Often uses figures and tables to convey data
- Qualitative – direct quotes

Table 1 Causes of third trimester stillbirth in South Africa

Cause	Fresh stillbirths (%)	Macerated stillbirths (%)
Intrapartum asphyxia	28.9	4.6
Antepartum hemorrhage	26.9	9.1
Unexplained intrauterine death	15.7	47.9
Hypertensive disorders	10.1	19.1
Spontaneous preterm labor	7.2	4.2
Fetal abnormality	4.4	2.3
Infections	2.3	3.9
Intrauterine growth retardation	1.3	2.9
Maternal disease	1.2	3.6
Miscellaneous	0.9	1.3
No obstetric cause/Not applicable	0.6	0.6
Trauma	0.5	0.4
Total	100	100

Source: [6].



Results: general organization

- Often starts with characteristics of your study population (“Table 1”)
- Can be organized by aim or chronologically
- Data tells a story



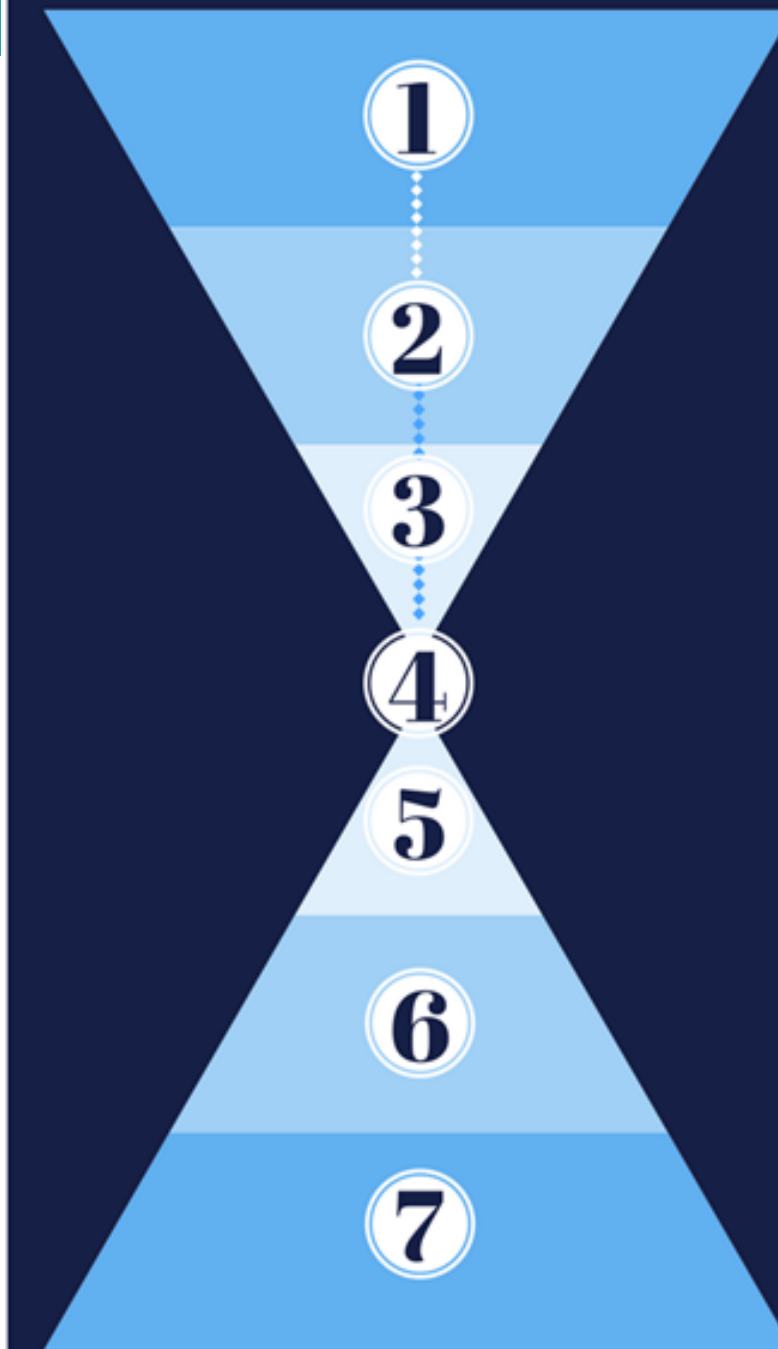
Discussion

- Interpret your data - what are its implications
- How does it relate to the current state of knowledge
- Opportunity to relate your capstone project to other topics learned over the course of the year, e.g. policy and health systems
- **Tip:** when reviewing the literature, the discussion section can give you lots of ideas re: gaps in knowledge (and research questions)!

Discussion: general organization

- Brief statement of your key finding(s)
- Interpretation
- How does it relate to previous findings, e.g. align, conflict, add to...
- Study strengths
- Study limitations
- Next steps, future research or recommendations
- Succinct conclusion paragraph

Core sections of a scientific article



- 1** **INTRODUCTION:**
What is known?
(Our understanding of the world)
- 2** What is unknown?
(What's the gap we want to fill?)
- 3** How and why
should we fill the gap?
(Your rationale and purpose/hypothesis)
- 4** **METHODS:**
What did you do?
- 5** **RESULTS:**
What results did you get?
- 6** **DISCUSSION:**
How do the results fill the gap?
- 7** **CONCLUSION:**
What does this mean for us going forward?

Abstract

- Stand-alone piece of writing that should reflect what your paper is about
- Often the first (and only) content read
- Sometimes the only component people have access to
- Written **last** after you have determined your key messages/findings

During 203, we will do a deeper dive into each of these sections

203A: Fall

- **Background/
Literature review**
- **Research question
& aims**

203B: Winter

- **Methods**
- **Results***
- **Discussion***

203D: Summer

- **Abstract**
- **Revised
Background**

** We will review the
Results & Discussion
sections before you leave
for your capstone!*

Expectations around writing

- Iterative process
- Peer review helps
- Get your mentor's feedback early
- Navigate inconsistent advice

Writing help works best one-on-one:
Office hours if you need extra help

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