Academic Writing and Reading – Term Paper (DAT110)

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Lecture: Dec. 4, 10:00-11:45 in EL42
Workshop: Dec. 18, 09:00-11:45 in EC

Today's agenda

- Writing & Learning
- Academic Writing
- **Report Structure**
- **Paragraphing**
- Types of Reading
- **Referencing**
- Peer Response

Academic Research and Writing

# Writing & Learning

Learning to Write & Writing to Learn

- ☐ **Learning outcomes:** *clearly and unambiguously* _____ *[information]…*
  essential in engineering and research
- ☐ **(Term paper PDF)** *The writing training will prove useful in your future career*
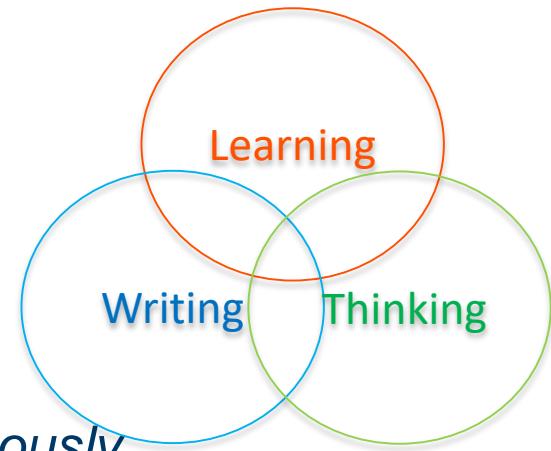
Stages of Writing

	Writer-oriented ⟷	**Reader-oriented** ⟷
Audience	_____	_____
Purpose	clarifying, organizing ideas	communication between individuals
Style of language	_____; private, personal/coded	_____; public
Structure/ Form	linear, direct: notes, diary, _____	_____: essays, papers, theses, reports, business communication …

(Chandler & Munday, 2016a & 2016b; Erlbaum, cited in Nordquist, 2017; Jalmar, 2016)

Writing Process

- Drafting

- Self-reflection / **Peer response**

- Revision
  - _____, content-level (structure/logic/meaning)
  - _____, sentence/word-level, style
- _____, (minor grammar & spelling, punctuation)

- Final version
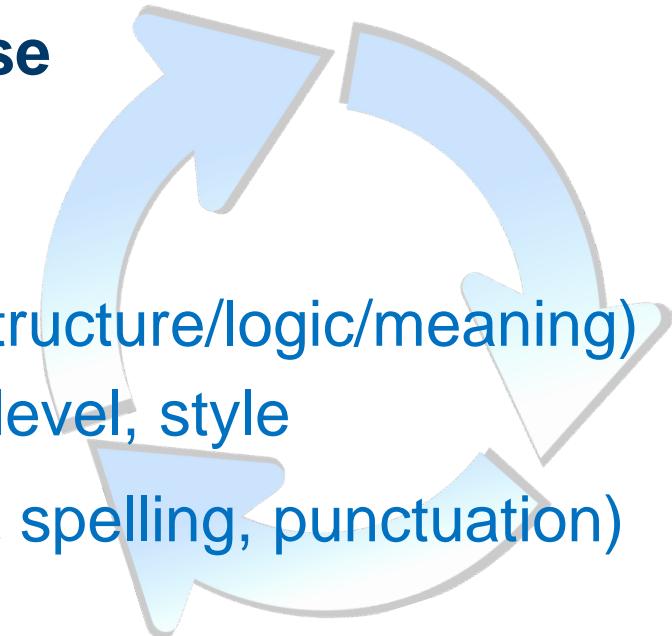
Academic Writing

■ What are some desired features?

> long sentences   logical   concise   honest
>
> personal   objective   subjective   critical
>
> complex sentence structure   consistent   informal
>
> many synonyms   clear   difficult words
>
> precise   analytical   vague   research-based
>
> coherent   cohesive   formal   factual

Informal vs. Formal Styles – Examples

We made <u>awesome</u> progress in <u>bringing up</u> awareness of <u>lots of</u> <u>really</u> <u>dreadful</u> security <u>issues</u>!!

Exercise

☐ LaTex is <u>something</u> that is used <u>a lot</u> for <u>making</u> scientific <u>stuff</u> <u>like</u> reports, studies<u>, etc</u>.

☐ Expert Systems can help <u>people</u> in <u>finding out</u> <u>what is wrong</u>.

☐ Researchers have come up with a new way of taking care of the issue.

Report (essay) structure

General
↓
Specific

Body para.
Body para.
Body para.
...

Specific
↓
General

- **Abstract** (optional)

  □ Brief summary of main points and should be finalized

- **Introduction** (1+ paragraphs)

  □ _____

- **Main body** (several paragraphs)

  □ Term paper: technical description + results

  ● Sections (subtopics)

  ● Figures and tables

- **Conclusion** (1+ paragraphs)

  □ _____ _____

- **References**
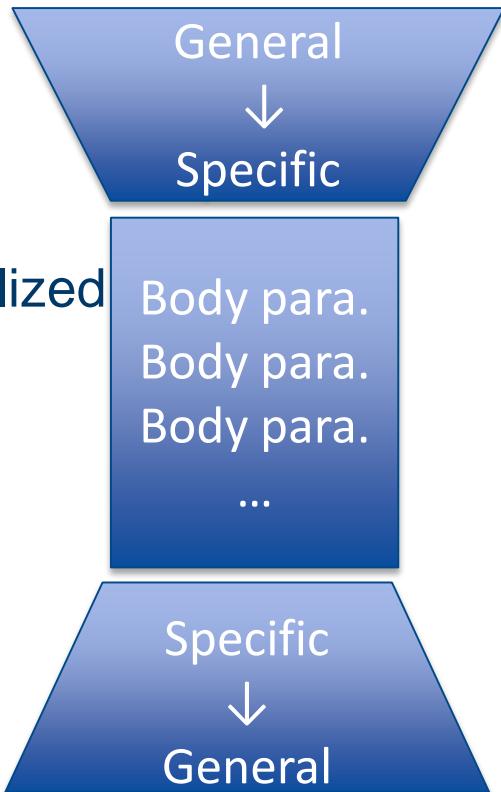
Low Power and Power Management for CMOS— An EDA Perspective by J Kawa (2008) [longer article]

Term paper examples

Hardware Acceleration and Emulation	Design and Verification Languages

I. **Introduction**
II. Use Minds for Hardware Accelerator and Emulator Devices
III. Processor-Based Acceleration and Emulation
IV. FPGA-Based Acceleration and Emulation
V. GPGPUs and Logic Simulation
   A. Synchronous algorithms
   B. Discrete event driven algorithm
VI. **Conclusion**
   References
	Abstract
	VHDL
	Verilog
	SystemC
	ASystemC
	Key elements of a Testbench
	e
	SystemVerilog
	Bluespec SystemVerilog
	Open Verification Methodology (OVM)
	Comparison with respect to adaptation
	Conclusion
	References

<u>Introduction</u> (Trent University, n.d.)

What is the topic?
Why is it important?

Domain → topic/problem

Systems design → power consumption → microarchitectual level

- _____ to/_____ for the report
  - _____, description, examples, cause-effect, etc.
- (Gap) however, but, little, no

General
↓
Specific
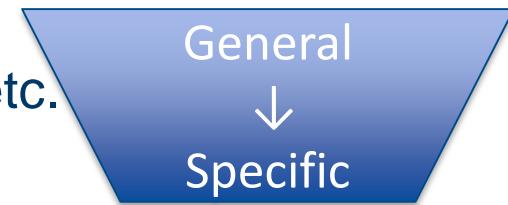
- Purpose/Aim of report (+RQ) (+value)

- (Preview / Structure of the report)

Tables & Figures

■ Caption (see IEEE, 2016)

■ _____+ Summary statement

Table 1 shows the common language learning software available at Swedish universities.

■ Verbs (Swales & Feak, 1994, p. 83)

☐ _____ **voice:** demonstrates, depicts, describes, indicates, illustrates, lists, presents, reveals, shows, summarizes…

● Fig. 1 + Verb …

☐ _____ **voice:** (be) given (in), illustrated, listed, presented, seen, shown…

● X is shown in Fig. 1.

● As shown in Fig 1, X …

● … (Figs 1 and 2).

Don't describe word for word!

Tables & Figures – Highlights&Commentary

Table 1 _____ the common language resources available at Swedish universities. _____, …. _____, workshops … _____, online resources… This _____ due to the fact that…

■ Content (Swales & Feak, 1994, pp. 77-97)

☐ general → specific; major → minor

☐ analysis, comparisons

☐ explanations, implications

■ Being _____

☐ X _____ Y. (caused, contributed to, influenced, was one of the causes of, might have been a small factor in; seems; possibly)

Paragraph Structure

■ Topic sentence (kärnmening)

   □ _____ sentences of the paragraph (exception: introduction)

   □ Controlling idea (previews/limits content) – unity

   □ Length?

■ Body (Support/Development)

   □ Definition

   □ Explaination, details

   □ Examples

   □ Facts, data

   □ ...

   □ Citations (references)

Topic Sentence

Unlike gasohol-powered cars, the fuel cell alternative is virtually pollution-free. A methanol fuel cell system works through chemical reactions that leave the air clean. A fuel processor breaks the methanol down into carbon dioxide and hydrogen; the hydrogen is then pumped to the cell itself, where it combines with oxygen to form water… The net products are carbon dioxide, water, and electricity. Hydropower is one of the earliest forms of green energy. By contrast, when gasohol is burned in an internal combustion engine, it produces the same nitrous oxides that gasoline does.
(Gurin, cited Huckin & Olsen, 1991, pp. 409-410)

Improving "Flow" (Swales & Feak, 2012)

- Repetition of key words

  gasohol, methanol, fuel cell, hydrogen

- Pronouns (**it**, its, they, their, them)

- Relative pronouns (that, which, who…)

  …chemical reactions **that** leave the air clean

- This + "summary word"

  This process …

- Old+New Information:

  An alternative that is virtually pollution-free is the **fuel cell**. A methanol fuel cell system works through **chemical reactions**. In a series of chemical reactions, the methanol is broken down into carbon dioxide and **hydrogen**; the hydrogen is then combined with oxygen to form water… (Adapted from Gurin, cited Huckin & Olsen, 1991, pp. 409-410)

Paragraph Development

☐ Definition

☐ Physical description

☐ Classification

☐ Comparison & Contrast

☐ Process

☐ Problem-solution

☐ Cause-effect

☐ Subtopics

+ explanations; details; examples

+ Citations (References)

Definition + Classification (Comparison & Contrast)

Open access (**OA**) means unrestricted online access to peer-reviewed scholarly research. There are two ways to make an article openly available: 1) through author self-archiving in an OA repository, also known as 'green' OA, or 2) through publishing in an open access journal, known as 'gold' OA.

With green OA, authors publish in any journal and then self-archive a version of the article for *gratis* public use on the author's personal web site, on a server operated by the author's employer, or …

With gold OA, authors publish in Open Access journals…

(IEEE, 2016, pp. 4-5)

Sentence Patterns

- Definition
  - X means / is / is defined as / refers to / describes …
  - purpose / function / value …
  - X includes / comprises / is mainly / is generally …
    (general description)
- Classification
  - X is divided / classified / grouped / categorized into…
  - There are … types / levels / stages / categories…
- Comparison
  - Both X and Y are … / X and Y are similar in that…
  - X is more … than Y
- Contrast
  - X is different from Y
  - X is …, while/whereas Y is …

GÖTEBORGS UNIVERSITET

MANCHESTER 1824
The University of Manchester

Academic Phrasebank http://www.phrasebank.manchester.ac.uk/

| Introducing Work | Referring to Sources | Describing Methods | Reporting Results | Discussing Findings | Writing Conclusions |

HOME »

Classifying and Listing

GENERAL LANGUAGE FUNCTIONS

- Being Critical
- Being Cautious
- **Classifying and Listing**
- Compare and Contrast
- Defining Terms
- Describing Trends
- Describing Quantities
- Explaining Causality
- Giving Examples
- Signalling Transition
- Writing about the Past

ABOUT PHRASEBANK

When we classify things, we group and name them on the basis of something that they have in common. By doing this we can understand certain qualities and features which they share as a class. Classifying is also a way of understanding differences between things. In writing, classifying is often used as a way of introducing a reader to a new topic. Along with writing definitions, the function of classification may be used in the early part of an essay, or longer piece of writing. We list things when we want to treat and present a series of items or different pieces of information systematically. The order of a list may indicate rank importance.

General classifications

| X may be divided into | three main | classes. sub-groups. categories. |

For previewing sections or transitioning between ideas/paragraphs

| X may be classified | on the basis of according to depending on | Y | into Xi and Xii. |

NOTE: the referencing style on this webpage is Harvard, not IEEE

12/3/2018

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Process

…what we now know as the scientific method provides guidelines for the systematic acquisition of knowledge. Following this method, the researcher first observes some aspects if nature and then poses a specific question about what has been observed. In order to answer this question, pertinent data are collected. On the basis of these data, a hypothesis is proposed to explain them. Experiments based on this hypothesis are designed and conducted to test each contingency. After thorough experimentation, the researcher validates, modifies, or rejects the original hypothesis.

*(*Arnaudet & Barrett, 1990, p. 82*)*

first, second, next, then, during, after that, finally …

Problem-Solution (Swales & Feak, 1994, p. 75)

All people need to eat, and they eat a variety of foods—rice, vegetables, and meat. However, the problem is that sometimes people can become ill after eating spoiled or contaminated food. Each year millions of people become sick or even die. Meat can be particularly dangerous because it is difficult to determine whether it has been contaminated by simply looking at it. Fruit and vegetables at least have obvious signs of spoilage. One solution to this problem is to slow the process of spoilage…

Note: problem and solution can be in different paragraphs

Cause and Effect (+Examples)

Families are the basic units of society and have been transformed to a great degree over the past 50 years as a result of changes in their structure (for example[,] smaller families, later marriage and childbearing, increased divorce rates and single parenthood), global trends in migration, the ageing of the population and HIV/AIDS. **These dynamic social forces** have had a manifest impact on the capacities of families to perform such social functions as the socialization of children and caregiving for its younger and older members.

(Source: Writing for the UN, 2007)

Latin Abbreviations

Abbr.	Meaning	Example (IEEE, 2016 – also see II-B, III, IV-A, etc.)
e.g.	for example	Hyphens and periods are accepted, if [they are] consistent in [the] paper, e.g., (1a), (1.1), (1-1). (p. 16)
i.e.		Hyphens and periods are usually removed from equation numbers, i.e., (1a) rather than (1-a) … (p. 31)
viz.	namely	*(not commonly used)*
etc.	and so forth	[figures] …the citation of (a), (b), etc., should always appear before the corresponding caption part. (p. 17)
cf.	compare with	(cf. [3])
et al.		*(see Referencing)*

Types of Reading

	Extensive reading	Intensive reading
Purpose	for _____ (general reading skills)	for _____
Understanding	general, overview	complete
Details	not so important	very important
Types	books, magazines	journal articles, contracts, legal documentation, application forms

Reading Techniques – Skimming for General Idea

■ Book cover

■ Table of contents

■ Summary/abstract

■ _____

■ Section summaries

■ Conclusions

■ Tables, figures and pictures

■ _____ words

■ **Topic sentences** (and _____ sentences)

Why Use or Cite Sources?

■ _____ your knowledge and research

■ Add _____ to your points

■ _____ the contribution of others

  □ Words
  □ Information, ideas, theories
  □ Methods, processes
  □ _____
  □ Speech, music

Exceptions:
historical events,
general knowledge, standard
academic usage, field-
specific common knowledge,
Eg., Newton's law of motion

■ Allow others to _____ the sources

■ Contribute to the _____ in the scientific community

Plagiarism

"[to present] the words or ideas of others without giving credit"
(University of Wisconsin, n.d.)

"uncredited use (both intentional and unintentional) of somebody else's words or ideas." (Purdue OWL, 2014)

■ Instances (Jahlmar, 2016)
  □ Copy text word-by-word without " " or _____ reference
  □ Summarize or paraphrase without in-text reference
  □ _____ a text without giving a reference
  □ Take sections of a text and just change a few words to synonyms, whether you are give a reference or not

→ Avoiding Plagiarism: Plagiarism (ub.gu.se) GUL: Academic integrity

IEEE Editorial Style

■ Institute of Electrical and Electronics Engineers

■ Full manual: https://www.ieee.org/documents/style_manual.pdf

■ **Citing/Referencing** (IEEE, 2016, p. 34)

  □ **In-text citation** – in body text (brief)

  ● as _____ numbers:

  … as shown by Brown [4], [5]

  As mentioned earlier [2], [4]–[7], [9], …

  Smith [4] and Brown and Jones [5, p. 6] … / Wood et al. [7] …

  ● as _____

  … as demonstrated in [3, pp. 5-7]

  According to [4] and [6]–[9], …

  NOTE: Use **et al.** for three or more authors for in-text citation

  □ **Reference list** – at the end (complete)

Reference List

- vs. Bibliography
- In order of first appearance in text
- Categories (IEEE, 2016, pp. 34-39)
  - Periodicals, Books, Reports, Handbooks, Published Conference Proceedings, Papers Presented at Conferences, Patents, Theses (M.S.) and Dissertations (Ph.D.), Unpublished, Standards
  - *On-Line Sources:* Books, Monographs, Periodicals, Papers Presented at Conferences, Reports and Handbooks, U.S. Government Documents, Patents, Manuals/Software
  - Abbreviations

Manual provides *basic format and examples:*
[1] J. K. Author, "Name of paper," *Abbrev. Title of Periodical*, vol. *x,* no. *x,* pp. *xxx-xxx,* Abbrev. Month, year.

- NOTE: Use **et al.** for six or more authors

Examples (IEEE, 2016, pp. 34-39)

[1] B. Klaus and P. Horn, *Robot Vision.* Cambridge, MA, USA: MIT Press, 1986.

[2] J. P. Wilkinson, "Nonlinear resonant circuit devices," U.S. Patent 3 624 125, July 16, 1990.

[3] L. Stein, "Random patterns," in *Computers and You,* J. S. Brake, Ed. New York, NY, USA: Wiley, 1994, pp. 55-70.

[4] W. P. Risk, G. S. Kino, and H. J. Shaw, "Fiber-optic frequency shifter using a surface acoustic wave incident at an oblique angle," *Opt. Lett.*, vol. 11, no. 2, pp. 115–117, Feb. 1986. [Online]. Available: http://ol.osa.org/abstract.cfm?URI=ol-11-2-115

[5] S. P. Bingulac, "On the compatibility of adaptive controllers," in *Proc. 4th Annu. Allerton Conf. Circuit andSystems Theory*, New York, 1994, pp. 8–16.

…Is it a book, chapter in book, conference proceeding, patent, or online periodical?

Verbs for Reporting

■ Examples (University of Bath, 2017)

... **as shown** by Brown [4]
As previously [3] **stated** …
The theory was first **put forward** in 1987 [1].
For example, **see** [7].
Several recent studies [3], [4], [15], [16] **have suggested** that…

■ Some common verbs

agree, analyzes, argue, assert, claim, conclude, confirm, describe,
discuss, explain, examine, find, identify, indicate, maintain, note,
observe, present, provide, propose, report, show, state, study,
suggest, support …

Cf. Reporting Verbs and Your 'Writer's' Voice

Engaging with Sources

- Avoid dumping
  - "Open source is characterized by a low intensity of incentives."
  - Demil et al. [2] explains the characteristics of open source, its benefits and its disadvantages. They mainly characterize open source in the following way, "...(a low intensity of incentives and weak control)..." [p. 3] (Source: coursework for ITA010 Autumn 2018, with modified citations)

- Use your own words
  - …these experts spend most of their time on reviewing XYZ and "far less of their time and imagination on how we might improve the innovation process" [5, p. 60].
  - … however, the issue of improving the innovation process has been neglected [5].
- Distinguish between information prominent vs. author prominent
  - XX is proportional to YY [8].
  - McArthur *et al* [9] **applied** XX to study YY / **suggest** using ABC …

- Synthesize the sources

- Use reporting verbs

Synthesising material: bringing sources together - close

...

Smith argues that ...

Al-Masry (2003) sees X as ...

Similarly, Jones (2013) asserts that ...

Likewise, Wang (2012) holds the view that ...

Some writers (e.g. Smith, 2002) have attempted to draw fine distinctions between ...

Some authors have mainly been interested in questions concerning X and Y (Smith, 2001; Jones ...

Much of the available literature on X deals with the question of ...

Others (see Jones, 2003; Brown, 2004) question the usefulness of ...

Others have highlighted the relevance of ...

But Smith (2008) is much more concerned with ...

Zhao (2002) notes that ...

Smith (2013) found that X accounted for 30% of Y.

However, Jennings' (2010) study of Y found no link between ...

Other researchers, however, who have looked at X, have found ... Jones (2010), for example, ...

Some ways of introducing quotations
Summarising the review or parts of the review

Reporting verbs

Language Tips

■ Subject-verb agreement

Single noun	Plural noun + I/You
It is/was/has/uses … The approach uses …	They are/were/have/use … The approaches use … **I / You use** …

■ American Eng vs British Eng (British Council, n.d.; Oxford Dictionaries, 2017)

	American English	British English
Usage	Major journals, IEEE	Preferred by Chalmers
Quotation marks	" " *but* "a 'smart' design"	' ' *but* 'a "smart" design'
-ter, -tre	center, theater	centre, theatre
-or, -our	favor, neighbor	favour, neighbour
-ze / -se; -se / -ce	organize, analyze organization; defense	organise, analyse (also with z) organisation; defence
-**gue** / -m**me** / -l**l**	dialog, program, fueled	dialogue, programme, fuelled

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Peer groupings (HT18)

- Give the other group your term paper draft no later than **Monday, Dec. 17**.
  - □ Provide 1-3 questions to get feedback on

- Format is optional: PDF via e-mail or printed paper?

- Read the other group's draft before the workshop

	versus	
1	Hardware/software codesign (Chhapanimohan + Xu)	Memory considerations for low power systems
2	EDA for reconfigurable computing	Hardware/software codesign (Ruiz García + Speiser + Han)
3	EDA for signal and power integrity solutions	Scaling and design for manufacturability (DFM)
4	Adaptive circuits and systems	SoC voltage regulation
5	Design for test	Low-power digital circuit implementation

Instructions for Peers

- When reading, take note of *the author's questions/concerns*, review the *assignment requirements (assessment criteria)*, focus on *the content and structure*, and mark both *strengths and weaknesses*

  (read the text first for the main idea, and then read it again*N for details)
  - ☐ Is the main idea/purpose clear?
  - ☐ Is the issue presented in a way that interests the reader?
  - ☐ Is the information presented logically?
  - ☐ Are all the elements in the right place?
  - ☐ Is each paragraph unified? Are there irrelevant details?
  - ☐ Should more definitions, examples, clarifications, evidence or references be provided?
  - ☐ Is there unnecessary repetition?
  - ☐ What would you like to know more about?

- Underline places that are unclear and mark places where you have questions

*Do not focus primarily on grammar, but you can mark places where the language makes it difficult for you to understand the meaning

Arnadaut, M. L., & Barrett, M. E. (1990). *Paragraph Development – A Guide for Students of English* (2nd ed.). New Jersey: Prentice Hall Regents.

Bean, J.C. (2011). *Engaging Ideas: the professor's guide to integrating writing, critical thinking, and active learning in the classroom* (2nd ed.). San Francisco, CA: Jossey-Bass.

Chandler, D, & Munday, R. (2016). Reader-oriented. In *A Dictionary of Media and Communication* (2nd ed.). Oxford University Press.

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Jahlmar, J. (2016). *Academic Writing and Reading* [PowerPoint slides]. Gothenburg: University of Gothenburg.

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Nordquist, R. (2017, March 26). *Writer-Based Prose.* Retrieved November 1, 2017, from https://www.thoughtco.com/writer-based-prose-1692510

Neufeld, J.K. (1987). A Handbook for Technical Communication. New Jersey: Prentice-Hall, Inc.

Swales, J. M., & Feak, C. A. B. (1994). *Academic Writing for Graduate Students*. University of Michigan.

Swales, J. M., & Feak, C. A. B. (2012). *Academic Writing for Graduate Students* (3rd ed.). University of Michigan.

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University of North Carolina at Chapel Hill. (2017). *Transitions (ESL).* Retrieved November 23, 2017, from http://writingcenter.unc.edu/tips-and-tools/transitions-esl/

University of Technology Sydney. (n.d.). *Reporting Verbs*. Retrieved November 23, 2017, from https://www.uts.edu.au/current-students/support/helps/self-help-resources/grammar/reporting-verbs

University of Wisconsin. (n.d.). *Academic Misconduct Guide for Students*. Retrieved August 22, 2017, from http://uwc.edu/students/handbook-policies/academic-misconduct-guide-students

Weston, A. (2000). *A Rulebook for Arguments* (3rd ed.). Indianapolis: Hackett Publishing Company.

Writing for the United Nations. (2007). *V. Sentence and paragraph development.* Retrieved November 30, 2017, from http://dd.dgacm.org/editorialmanual/training/lessons/link_d.htm

Useful Resources:
Academic Phrasebank
Chalmers Writing Guide
Chalmers Writing Centre – book a session with a writing tutor to get feedback! It's free!