

Research Reports Workshop

April L. Vise
BUILD Science Writer
September 16, 2016




Overview

- ▶ BUILD Writing Assignments
- ▶ Basics of a Research Report
- ▶ The Writing Process
 - Scientific Writing Language
- ▶ Resources

BUILD Writing Assignments



BUILD Writing Assignments— Why?

- ▶ Accountability to NIH
 - This grant is writing intensive.
 - We want you to be great biomedical researchers AND writers!
- ▶ All assignments (but 1) are already required in Mentoring Plan (Chronus)
 - ▶ You will receive reminders in Chronus 2 weeks before the due dates.
- ▶ End product  Senior Honors Thesis

BUILD Writing Assignments — Juniors

Assignment	Due Dates
	Fall 2016
#1 Annotated Bibliography	November 9 → Mentor* November 23 → BUILD
#2 Abstract	December 2 → Mentor* December 12 → BUILD
	Spring 2017
#3 Thesis Proposal	April 24 → Mentor* May 5 → BUILD

*Your mentor needs to review your assignment prior to final submission to BUILD. You may send your draft to your mentor before this date.

BUILD Writing Assignments — Seniors

Assignment	Due Dates
	Fall 2016
Thesis proposal due for those with new mentors	October 10 → BUILD
#1 Thesis—Intro & Methods section	November 9 → Mentor* November 23 → BUILD
	Spring 2017
#2 Thesis—Results & Discussion section	March 20 → Mentor* March 31 → BUILD
#3 Thesis (final)	April 24 → Mentor* May 5 → BUILD (previously Apr. 26)

*Your mentor needs to review your assignment prior to submission to BUILD. You may send your draft to your mentor before this date.

BUILD Writing Assignments— General Guidelines

- ▶ Use these guidelines to help guide you through your research writing.
- ▶ Consult with your mentor since there may be a different format more appropriate to your specific field.



Research Report Guidelines

A research or scholarly report is intended to communicate the results of your project to other researchers or scholars in your field of study. It is meant to be a stand-alone communication that explains in detail the current state of your field of knowledge, the overall importance of your studies, how your studies were conducted, the results you obtained and how they advance the knowledge in your field of study.

Below are the instructions regarding the format you should follow for your reports.

Page Format

Margins: 1 inch on all sides
Text Font: Arial 11 throughout
Spacing: Double-space except for references, which are single-spaced
Ink color: Black

Tables and graphs font: you may use fonts other than Arial as convenient, but ensure readability. Other ink colors may be used for visual appeal and clarity.
Leave one blank line between sections.
Section titles should be **bold**

Page numbering: top right – do not number the title page.
Justification: left justified except for the title page where all elements are centered. Do not right-justify text.

Report Sections

Below are the sections most commonly used in research/scholarly reports. Feel free to consult with your advisor since there may be a different format more appropriate to your specific field.

Title Page: Should contain the following: project title, student name, student school affiliation & department (don't write just UTEP - fully spell out the name of your school), research advisor name, and her/his department.

Introduction: This section should introduce the reader to your field of study in general first, then to the specific questions you are asking in your project. It is a review of the literature that allows you to describe what has been previously published on the topic of your project and thus put in context the research that you are conducting. When discussing research that has been published always cite the references. As one reads, one should be guided to where the information came from. Note that there is a reference (bibliography) section at the end. Give definitions when appropriate throughout your introduction. Whenever you introduce a new acronym (in this section or later in the report), make sure you define it the first time you use it.

1

BUILD Writing Assignments— Submission Process

- ▶ Please submit all assignments to buildingscholars@utep.edu with a subject line of “<Insert Assignment Name Here>:[Student’s Last Name]”.
- cc: BUILD when submitting assignments to YOUR MENTOR
- cc: YOUR MENTOR when submitting assignments to BUILD

Writing Circles

- ▶ Goal: Peer review on written assignments
Bring a writing assignment & laptop
 - Any writing assignment, personal statement, CV, resume, etc.
 - For both BUILD juniors and seniors
 - These are optional, but encouraged!
- ▶ All sessions will be held on Saturdays in the SCALE-UP room from 10 a.m. to 1 p.m.

Fall	Spring
October 15	February 4
November 19	April 1

FAQs

- ▶ How do I find a scientific journal in my field?
 - Visit the UTEP library online (or ask a librarian)
 - Intro to Online Databases
 - https://www.youtube.com/watch?v=600V99rF_jQ&feature=youtu.be
- ▶ What is an annotated bibliography?
 - It is a list AND summary of each of your sources/references.
- ▶ Is there an abstract and thesis template?
 - Yes. They are located on the Chronus portal.

Basics of a Research Report



Types of Research Articles

- ▶ Empirical ✓
 - Contains original research based on experience and observation
- ▶ Review
 - Summarizes the current state or progress of a particular subject, topic of area

Empirical Articles— The “Bones”

- ▶ Abstract
- ▶ IMRaD
 - Introduction
 - Methods
 - Results, AND
 - Discussion
(Recommendations/Conclusion)
- ▶ Citations and References

IMRaD



Abstract

- ▶ Motivation
 - Why do you care about the problem and results?
- ▶ Problem statement
 - What problem are you trying to solve?
- ▶ Approach
 - How did you answer your research question?
- ▶ Results
 - What is the answer?
- ▶ Conclusion
 - What are the implications of your answer?

Abstract — Goals

- ▶ Audience can learn about all aspects of your research without actually reading your paper
- ▶ Include what is MOST important

IMRaD—Hourglass Technique



Central report sections

- ▶ Intro = starts out broad, then focuses on specific study and hypothesis
- ▶ Method = very narrow; what you did/used; technical
- ▶ Results = still narrow; focuses on specific tests performed to test your hypothesis
- ▶ Discussion/Conclusion = starts narrow; summarizes results; becomes broader as you discuss implications and limitations of your research

IMRaD—4 components

- ▶ Try to follow the Hourglass Technique and FOUR basic components

Introduction



- Intro = starts out broad, then focuses on specific study and hypothesis
- Method
- Results
- Discussion/Conclusion

Introduction—4 components (cont.)

- ▶ Establish the importance in your field
- ▶ Provide background facts / information
- ▶ Define the terminology
- ▶ Present the problem area / current research focus



Step 1

Introduction—4 components (cont.)

- ▶ Discuss previous and/or current research and contributions



Introduction—4 components (cont.)

- ▶ Locate a gap in the research
- ▶ Describe the problem you will address
- ▶ Present a prediction to be tested



Step 3

Introduction—4 components (cont.)

- ▶ Describe the present paper (your research)



Methodology



- Intro
- **Method = very narrow; what you did/used; detailed; technical**
- Results
- Discussion/Conclusion

Methodology—4 components

- ▶ Provide a general introduction and overview of the materials/methods
- ▶ Restate the purpose of the work
- ▶ Give the source of materials/equipment used
- ▶ Supply essential background information



Step 1

Methodology—4 components (cont.)

- ▶ Provide specific and precise details about materials and methods
 - Quantities, temperatures, duration, sequence, conditions, locations, sizes
- ▶ Justify choices made
- ▶ Indicate that appropriate care was taken



Step 2

Methodology—4 components (cont.)

- ▶ Relate materials/methods to other studies

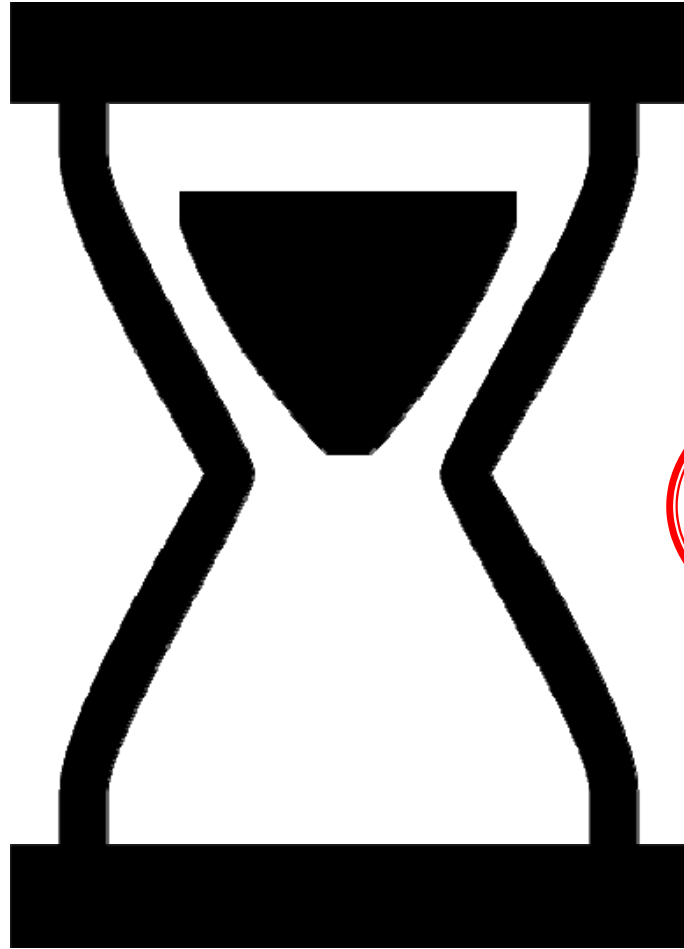


Methodology—4 components (cont.)

- ▶ Indicate where problems occurred



Results



- Intro
- Method
- **Results = still narrow; focuses on specific tests performed to test your hypothesis**
- Discussion/Conclusion

Results—4 components

- ▶ Revisit the research aim/existing research
- ▶ Revisit/expand the methodology
- ▶ Give general overview of results



Step 1

Results—4 components (cont.)

- ▶ Invitation to view results
 - Make sure reader interprets your data (figures, tables) correctly
- ▶ Specific/key results in detail, with or without explanations
- ▶ Comparisons with results in other research
- ▶ Comparison/s with model predictions



Step 2

Results—4 components (cont.)

- ▶ Discuss problems with results



Step 3

Results—4 components (cont.)

- ▶ Discuss possible implications of results



Step 4

Discussion/Conclusion



- Intro = starts out broad, then focuses on specific study and hypothesis

Opposite of
Intro



- Method
- Results

- **Discussion/Conclusion = starts narrow; summarize results; becomes broader as you discuss implications and limitations of your research**

Discussion/Conclusion—4 components

- ▶ Revisit previous sections
 - Summarize general or key results



Discussion/Conclusion—4 components (cont.)

- ▶ Mapping
 - What is the relationship to existing research?



Step 2

Discussion/Conclusion—4 components (cont.)

- ▶ Achievement/Contribution
 - Refining the implications
 - What does this mean??



Step 3

Discussion/Conclusion—4 components (cont.)

- ▶ Limitations
- ▶ Current and Future Work
- ▶ Applications



Last, but not least...

**Don't forget your citations and
references!**

Citations vs. References

- ▶ Citations are located in the body of your text.
- ▶ A *citation* occurs when you use a specific source in your work and then list the source in the reference section.

Citation

- ▶ References are located at the end of a report and contain the complete citation information.

Reference

Citations & References (cont.)

- ▶ According to the Canadian Lung Association (2008), most people who quit smoking use a combination of methods.
- ▶ Canadian Lung Association. (2008). *How to quit*. Retrieved May 26, 2008, from http://www.lung.ca/protect-protegez/tobacco-tabagisme/quitting-cesser/how-comment_e.php

Citation

Reference

Citations & References (cont.)

- ▶ Know what to cite
 - Keep track of original sources
 - Be careful of “cut and paste” online research
 - Beware of “common knowledge”
 - When in doubt, you must cite
- ▶ Know how to cite
 - Provide enough information in order to find the original source
 - Use your own words and ideas
 - If you repeat another’s exact words, you must use quotation marks and cite the source
 - Avoid using others’ work with minor cosmetic changes

Citations & References (cont.)

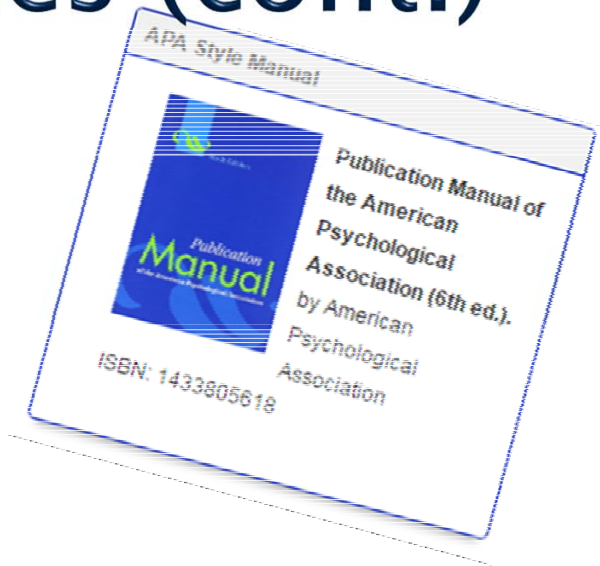
▶ Style

- This is determined by your professor, or if publishing, determined by the journal and publisher. Each discipline tends to use one of two styles. CHECK!
 - Common: APA, MLA, Chicago

Citations & References (cont.)

▶ Format

- Consult the Style Manual (newest edition)
- Purdue Online Writing Lab <https://owl.english.purdue.edu>
- UTEP Library Website



UTEP Home Page
Library Home Page
Mobile Library
GIVE NOW
Library Hours: 7am - 1am

Home Search & Find Research Help Instruction Library Services Special Collections About

RESEARCH GUIDES
→ By Subject
→ By Librarian
→ How Do I... ?

CITATION GUIDES
→ RefWorks
→ AMA
→ APA
→ Chicago
→ MLA

TUTORIALS
→ Search for Books
→ Find Books in the Library
→ Search for Articles
→ Find Full Text Articles
→ All About PINS
→ UNIV 1301
→ More...

NEED HELP?
→ Library FAQs
→ Ask a Librarian
→ Contact Us
→ Research Specialists
→ Database remote access
→ Plagiarism & Copyright

STOP
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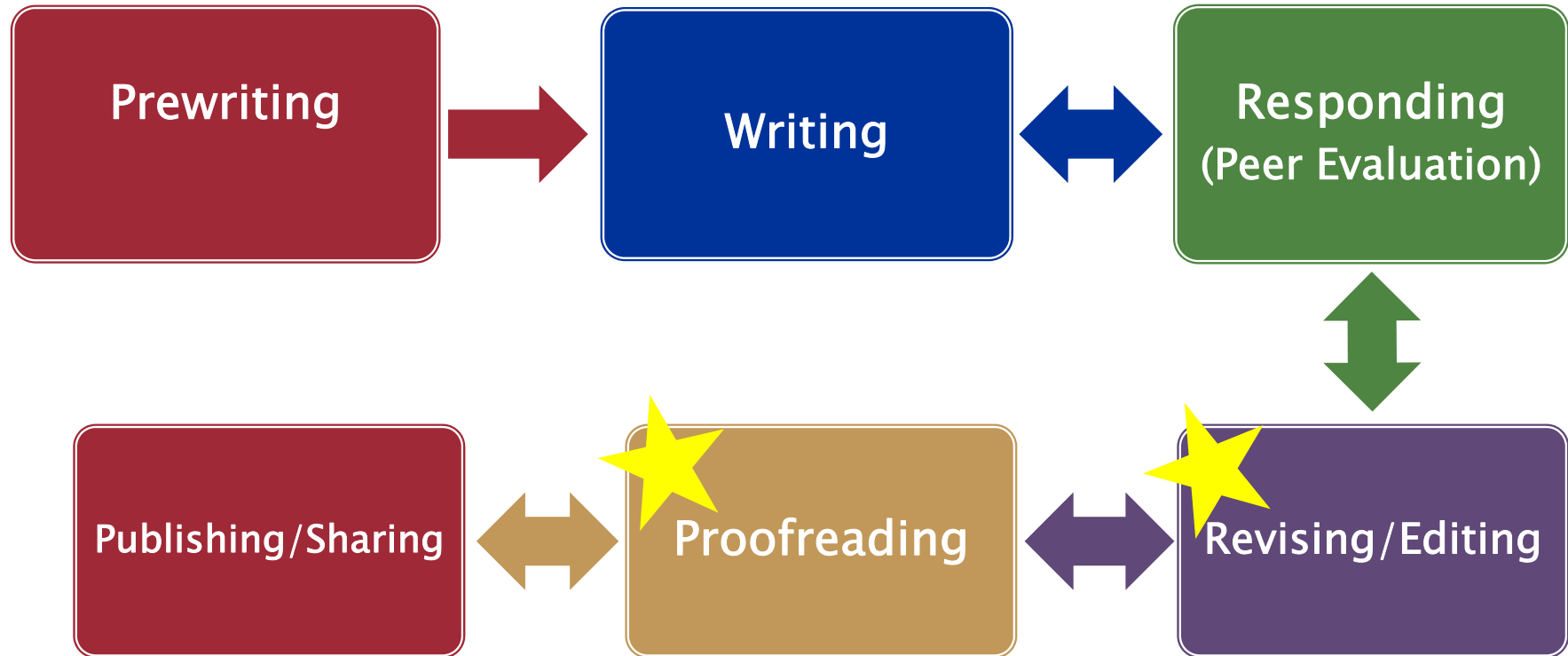
Citations & References (cont.)

- ▶ FAQ: What is the difference between a Bibliography vs. Reference page vs. Works Cited?
 - Depends on the style. (See previous bullet.)
 - Reference pages contain a **complete list** of all sources you have cited. Bibliographies contain **all sources** you have used, whether they are directly cited or not.

The Writing Process: How do I start?



The Writing Process



Prewriting — Strategize

- ▶ Brainstorming
- ▶ Freewriting
- ▶ Outlining
- ▶ Identify your audience
- ▶ “The Journalists’ questions”
 - Who, What, When, Where, Why, How

Writing

- ▶ Voice
- ▶ Word choice
- ▶ Grammar
- ▶ Content
- ▶ Organization

Scientific Writing Language

- ▶ Sentences
 - Complete, grammatically correct
 - Short, clear

- ▶ Words
 - Use technical terms correctly
 - absorb vs. adsorb
 - complement vs. compliment
 - affect vs. effect
 - where vs. were

Scientific Writing Language (cont.)

▶ Tenses

- Present — Known facts and hypotheses
- Past — Experiments you have conducted
- Past — Results of an experiment

▶ Use Active Voice

- Passive: “It has been discovered that...”
- Active: “We discovered that...”



Scientific Writing Language (cont.)

▶ Style

- Use formal language
 - examine vs. look into
 - increased vs. got bigger
 - decreased vs. got smaller
- Avoid contractions and possessive of things
 - hasn't vs. has not
 - the water molecule's shell
vs.
the shell of the water molecule

Revising / Editing

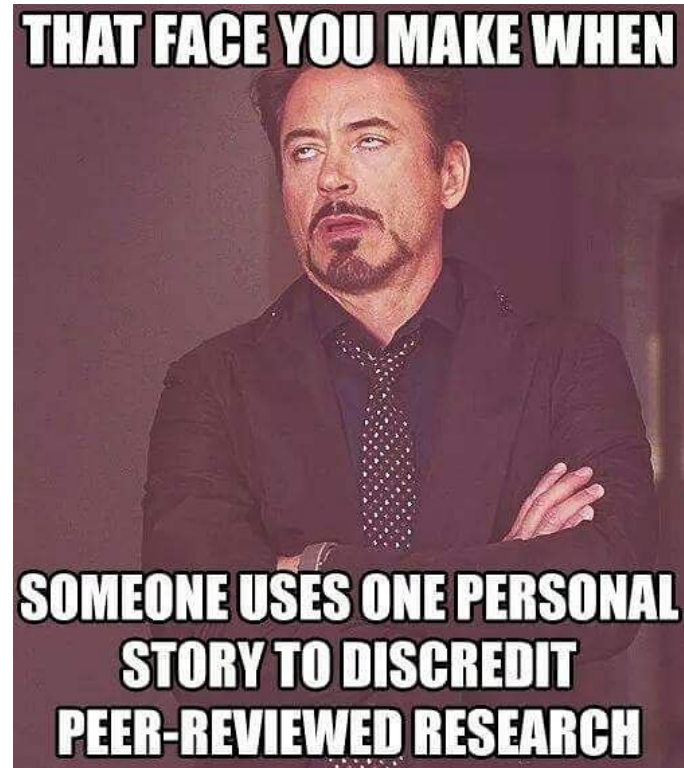
- ▶ Clarify
- ▶ Reorganize / Check the flow
- ▶ Refine

- ▶ Read out loud 
- ▶ Print out hardcopy 
- ▶ Distance yourself (look at it the next day)
 - Don't procrastinate!!!

Put your pride aside. Revise, revise, revise!

Responding

- ▶ Evaluation
 - Self
 - Peer
 - Advisor
 - Mentor
 - Tutor



Repeat this step prior to submission to a journal!

Proofreading

- ▶ Proofread
 - Spelling (spell check)
 - Grammar
 - <https://www.grammarly.com/>
 - Style/format
 - Punctuation

- ▶ Read out loud ★
- ▶ Print out hardcopy ★
- ▶ Distance yourself (look at it the next day) ★
- ▶ Use checklists
 - Create checklist of previous mistakes
 - Focus on each potential mistake separately (e.g., check all spelling first, then punctuation, etc.)
 - Requirements of paper/style



Publishing/Sharing

- ▶ Journal submission
- ▶ Presenting at a conference or symposium
 - BUILD Symposium on September 30th

Questions?



Writing Resources



Writing Resources

▶ BUILD Science Writer

■ April Vise

- Office Hours (located in BUILD office):
Monday 3–5 p.m.
Wed. 9 a.m.–12 p.m.
Fri. 2–4 p.m.
- To Request Writing Support
 - Fill out a Tutoring Request Form on BUILD website
<http://buildingscholars.utep.edu/>

AND THEN

- Email me directly: alvise@utep.edu
 - Explain question & include any guidelines given to you by your professor/instructor

Writing Resources (cont.)

- ▶ BUILD Writing Circles—10 a.m. in SCALE-UP

Fall	Spring
October 15	February 4
November 19	April 1

- ▶ Purdue Online Writing Lab
 - Website: <https://owl.english.purdue.edu/owl/>
- ▶ UTEP Library
 - University Writing Center, Room 227
 - Website: <http://uwc.utep.edu/>

Acknowledgements / Credits

- ▶ UTEP Graduate School Workshops
 - [Enhancing Writing Skills](#)
 - [How to Get Published in Scientific & Engineering Journals](#)

- ▶ Books
 - ▶ Glasman-Deal, H. (2010). *Science research writing for non-native speakers of English*. London: Imperial College Press

- ▶ Websites
 - <http://writing.ku.edu/prewriting-strategies#questions>
 - <http://www.eng.monash.edu.au/current-students/download/improving-scientific-writing-style.pdf>