

# PhD Research and Dissertation Writing in Statistics

**Instructor: Prof. John Borkowski**

**Course Website:** <http://www.math.montana.edu/~jobo/phdprep/>

**Short Course Outline (21 hours)**

- An Introduction to Ph.D. Research (1 hour?)
- Getting Started (2 hours?)
  - Selecting a research area in statistics and a topic for the dissertation.
  - Preliminary reading of texts and professional papers.
  - Keeping notes and being organized.
  - Efficient managing of your work time.
  - Overview of the contents of a dissertation.
- Characteristics of Good Dissertation Research (1 hour?)
  - Originality and relevance in the research field.
  - Manageability with respect to a time frame.
  - Clarity of the problem description.
  - Writing style suggestions.
- Supervision of Your Dissertation (1 hour?)
  - The roles of your PhD advisor and committee.
  - Guidance/advice versus collaboration.
  - Going from receiving assistance to working independently.
- Preparing and Presenting a Dissertation Proposal (3 hours?)
  - The format of the proposal.
  - Describe how the research topic relates to prior published statistical research.
  - Justify why the research is original and will be a worthy contribution to statistical theory and methodology.
  - Convince your committee that you are academically prepared and have the the skills to complete the research.
- The Literature Review (3 hours?)
  - What is a literature review and why is it necessary?
  - Preparing a list of the first articles and texts to review.
  - Finding research materials using the resources of your library, the internet, your advisor, your committee members.

- Writing a Dissertation (4 hours?)
  - General Comments about Writing a Dissertations
  - Writing the Different Chapters.
    - \* Writing the Introduction
    - \* Writing the Literature Review
    - \* Writing the Methods
    - \* Writing the Results
    - \* Writing the Discussion
  - Making and submitting revisions to your advisor.
  - Setting personal deadlines for producing drafts of dissertation chapters.
  - Plagiarism and why it is unacceptable.
    - \* How to avoid plagiarism
  - Writing details
- The Dissertation Defense (1 hour?)
  - Recommendations
- An Introduction to Scientific Document Preparation using LaTeX (The remaining hours)
  - The Preamble and Body of a LaTeX document.
  - Modifying text and text formats.
  - Creating lists, figures, and tables.
  - Mathematics mode in LaTeX (equations, matrices, theorems, ...).
  - Creating a bibliography or reference list.
  - Formatting guidelines for a dissertation.

After I complete each section of the course notes, I will send you an email with an attached pdf file that contains the notes.

The following websites provided me with additional ideas and material for the course notes.

<http://www.socscidiss.bham.ac.uk/>

<http://courses.ed.asu.edu/pena/disproposal.htm>

<http://www.cs.jhu.edu/~jason/advice/>

<http://www.cs.purdue.edu/homes/dec/essay.dissertation.html>

<http://www.cs.purdue.edu/homes/dec/essay.phd.html>

<http://www.eecs.harvard.edu/~htk/thesis.htm>

<http://knol.google.com/k> (and enter dissertation in the search box)

<http://www.learnerassociates.net/dissthes/>