

## General Thesis Guidelines for DGP Students

The guidelines below are to serve as general directions for the dissertations written by students in the Integrated Graduate Program of Northwestern University. As each thesis project and dissertation will be unique, no specific requirements for the thesis length or content can cover all possibilities. However, it is expected that the majority of dissertations will conform to the following general guidelines.

Examples of dissertations from former DGP students can be found at the NU library. Search by name using the Electronic Resource: [ProQuest Dissertations & Theses - Full Text](#).

A thesis will typically be 125 to 250 pages long, including figures but excluding references, in order to provide the level of detail expected. DGP students generally follow one of two formats for their thesis. The number and timing of publications resulting from their work often dictates the format to be followed. Below is a general outline for a thesis consisting of four chapters with all of the results presented in a single chapter. Alternatively, some dissertations will present the Results in more than one chapter, each chapter corresponding roughly to a submitted or published manuscript. These chapters may contain the submitted/published introduction, results, and discussion for each paper. However, the Materials and Methods for published papers are generally not sufficient for a thesis, and thus a more thorough version should be included in the overall Materials and Methods section (described in “Chapter 2” below) of the thesis instead of in the individual chapters. Furthermore, in addition to the Materials and Methods section, the student is expected to write an overall Introduction and Discussion as described in “Chapter 1” and “Chapter 4” below. Other formats are possible but the essential information should be standard.

### Four Chapter Thesis

**Chapter 1 - Introduction.** The Introduction to the thesis should contain a focused description of the background to the thesis problem. It should communicate the state of this research area and indicate the questions or hypotheses that were unanswered before this work was initiated. It may or may not discuss other work that was published during the experimental phase of the research since some of this may only be relevant within the Discussion Chapter. The Introduction should not be a broad review of the thesis laboratory’s research direction but should be focused to the student’s thesis subject area. The Introduction, Results and Discussion Chapters should be designed as cohesive consistent parts. The Introduction is typically 20 to 40 pages in length.

**Copyrighted figures from review articles or web sites should not be presented in the Introduction unless written permission is obtained from the copyright holder. Figures can be adapted from published models if they are redrawn and cited as adapted from the published reference.**

**Chapter 2 - Materials and Methods.** The Materials and Methods should describe the details of ALL experiments used, even those that have been published elsewhere. This section should be able to serve as a useful laboratory resource for future investigators of the thesis laboratory as well as other groups at Northwestern and outside the university. Some dissertations have the Methods as the last Chapter. This section is typically 20 to 60 pages long.

**Chapter 3 - Results.** This section describes the results obtained by the student as part of their thesis work. This section contains both written descriptions as well as figures and tables. The figures and tables should occupy 1/2 - 1 page each and should appear as close as possible to the text citation. Numbering of figures and tables relative to text in the Results section should be determined by the mentor and the student. Figures should be shown in the written thesis for all results mentioned as “data not shown” in any publications by the student. This section is typically 60 to 100 pages long, including figures and tables.

Figures should be original or published by the author. **Figures from review articles authored by others are not acceptable because of copyright restrictions, as the thesis dissertation is a public document.** If published figures not generated by the student must be used, the student must obtain written permission from the publisher. Figures generated by other laboratory members that are published with the student can be used with permission of the other laboratory member, but the contribution of the other laboratory members must be clearly indicated in the figure legend along with the permission.

**Chapter 4 – Discussion.** The Discussion section should be a scholarly discourse that puts the thesis work in the context of the relevant field. Related work of others published during the progression of the thesis work, and differences in experimental outcome or interpretation, should be addressed. The student should clearly indicate what is new or unique about his/her work and how it contributes to the field. Models should be presented and they are most effective if they indicate what was known before the work was initiated and what the current work added to the model. It is normal that future directions and unanswered questions be addressed in the Discussion and this can be done in the context of the model(s) presented. The quality of the Introduction and Discussion sections should be such that they could form the core of a review article of sufficient quality for publication in a peer-reviewed journal. Typically this section is 25 to 50 pages long.

**References** – References are placed at the end of the thesis, not at the end of chapters. References will include the names of all authors.

### **Additional Items**

Students are encouraged to review dissertations written and submitted in previous years for examples of format, content, and quality. However, it should not be construed as permission to deviate from the current rules if some past theses do not conform to these general guidelines.

Please note that the thesis must also comply with any and all requirements for format and style as found in the NU Graduate School instructions. These are included below.