

Department of Medical Biophysics Graduate Program  
BETTER THESIS INITIATIVE  
MSc and PhD Thesis Checklist  
December 2016

**Integrated Article Format**

Graduate students and supervisors actively involved in thesis planning typically choose the “Integrated Article” format, whether for [the MSc or the PhD level thesis](#). This format was introduced to allow candidates to take advantage of graduate research that is published, or in a late stage of completion toward publication. This format also helps examiners because the layout of the thesis will be in standard scientific form and organization with concise scientific language and clearly presented figures, diagrams, tables and statistical analysis, that have been critically reviewed (or prepared for critical review) for publication.

It is noted that this format is especially suited for the PhD thesis which usually has components of research that have been published, but may also be appropriate for the master’s thesis if one or more publications relate to the specific chapters from that research. While not all graduate programs at Western permit the Integrated Article Format for MSc candidates, Medical Biophysics certainly encourages this approach because it helps to accelerate or at least expedite peer-reviewed manuscript submission.

**Chapter 1, entitled General Introduction** (to separate it from *Introductions* of individual chapters) must include an orientation to the research of the thesis, with a general background describing related work and techniques of others, including methodology, strengths and limitations of current knowledge, that are planned to be addressed by the studies of the graduate research. One must include a comprehensive bibliography (of the order of 50 references as a rough guideline) supporting the background and proposed approaches, including hypotheses and objectives. An historical perspective with appropriate references is an expected component of this *General Introduction*.

**General Discussion and Conclusions**, is the title of the final chapter (as required by SGPS), and is separate from the individual discussions within each chapter (or papers), and more than an overall summary of the thesis as a whole. This chapter provides a critical appraisal of the thesis experiments, drawing together the overall accomplishments of the various studies, their innovation related to methodology and conclusions, objectives met and hypotheses supported or challenged. Discussion of the work of others is required, and this chapter will have its own references in the same

style as the other chapters. Suggestions for future experiments can be included as a subsection of this chapter.

**Methods or Theoretically Oriented Projects:** Since the integrated article format is organized for research that has been formatted or will be formatted for publication in a scientific journal, there may be projects that do not easily fit the *data-focused* projects. If a research is heavily weighted toward technical development or detailed mathematical formulation, requiring substantially more detail or discussion than normally allowed in a 'traditional' publication the candidate has the opportunity to include extra detail in an added an appendix, a more technical *General Introduction*, or a fuller discussion in the final chapter (*General Discussion and Conclusions*). Thus there are 3 areas of the thesis, outside the brief and concise language of a published paper, that allow an opportunity to expand theoretical or technical science.

### **Thesis Examples:**

Supervisors and students are aware that a published thesis from a former student in Medical Biophysics can be a useful template, especially related to overall thesis structure – front page layout, thesis table of contents, acknowledgements, reference style, chapter titles, table of symbols and abbreviations, etc. However, the focus for examiners and candidates is more on the scientific aspects – hypotheses, methods, statistics, and conclusions, and in many cases the overall thesis “form” is approved with less critical assessment.

The Better Thesis Initiative working group (Canham, Ward, Hough, Parraga) has reviewed several recent theses, expressly for the purpose of identifying example theses across the various subdisciplines of the program that could serve as well-structured theses with regard to form. The focus was on the “Integrated Article” thesis form.

We discovered that many of the key features of a thesis having excellent “form” are often lacking. Even our ‘recommended’ list of example theses, proposed below, have some inconsistencies, such as the SGPS mandated final chapter to be titled “General Discussion and Conclusions”. These theses were included because the final chapter did include a quality general discussion with assessment of study limitations and strengths, along with appropriate new references. With the caution that there are inconsistencies among the “recommended list” we think each included thesis provides a good template for structuring your thesis.

**EXAMPLE THESES:** please download from: <http://ir.lib.uwo.ca/biophysicsdtd/>

Braden Gammon MSc

Jesse Tanguay PhD

Miranda Kirby PhD

Susan Huang (Huang S. Shih-Han) PhD

Jennifer McLean PhD

Anthony Lausch PhD (CAMPEP)

Baraa Al Kazraji PhD

Sarah Svenningsen PhD

### Checklist Questions:

1. ☐ Have you read and understood the [SGPS thesis guidelines](#) for an MSc or PhD thesis at Western?
2. ☐ Have you read and understood the [supplementary thesis guidelines published on the Medical Biophysics website](#)?
3. ☐ Does the thesis have an introductory chapter titled *General Introduction*?
4. ☐ Does the thesis have a *General Discussion and Conclusions* chapter as its final chapter?
5. ☐ Have you proof read the references, and ensured that the style is consistent throughout the thesis (preferably in a style of one of the published chapters)?
6. ☐ Have you a style for figure captions, that displays them as different from the body of the text (as used in journal articles), perhaps with slightly smaller and different font and line spacing (e.g. Helvetica or Arial)?
7. ☐ Have you clarified the full authorship, exact title of the published or planned articles, stage of publication, and appropriate dates (e.g. paper under review by J. Biomechanics, submitted October 23, 2016), for each of the core results chapters. Does this match exactly the table or paragraph of co-authorships at the beginning of the thesis, and the candidate CV provided at the end of the thesis?
8. ☐ Do you have the [correct Certificate of Examination page](#) for the final thesis with examiners, supervisor, thesis title, etc. but without signatures? (Signatures are not to be included in the published thesis).
9. ☐ Once submitted for final publication, have you provided hard copy of the Certificate of Examination signed by all parties to SGPS?