

Auburn University
College of Architecture, Design and Construction
McWhorter School of Building Science

INSTRUCTIONS FOR UNDERGRADUATE RESEARCH THESIS

LAST UPDATED: AUGUST 15, 2019

RESEARCH THESIS PROPOSAL

A 3-5 page (around 1,200 words) written proposal is required before initiating work on the research thesis. The purpose of thesis proposal is to clearly define the research problem, objectives and scope, identify data collection methods, describe research methodology and provide timeline for thesis completion.

The written proposal should contain the following information:

1. **Undergraduate Research Thesis Approval Form**
2. **Cover page:** The cover page should depict the following information:
 - Thesis Title: Title should be brief and self-explanatory (30 words max).
 - Student's name and contact information.
 - Faculty supervisor name.
3. **Introduction and Background:** Briefly describe the need for this research and expected benefits (1 page max).
4. **Research Objectives and Scope:** Clearly define research objectives and scope, i.e. it should tell what exactly you want to do.
5. **Preliminary Literature Review.** Please identify at least 5 articles related with your research and present their summary (1-2 pages).
6. **Research Methodology:** Briefly define the main steps of your research.
7. **Data Sources:** Briefly explain how you would collect the data for this research. Indicate data sources, e.g. project names, companies' names, etc. and type of data (experimental, qualitative (e.g. interviews), or quantitative (extracted from the project documents)). List all software you plan to use.
8. **References:** Include a list of articles used in this proposal.
9. **Timeline:** Divide your research work in milestones and define timeline of each milestone.
10. **Budget*:** Include a list of possible expenses and provide justification.
** The school will decide to fund or not to fund a particular project. If a project is not funded then the student may have to bear all project related expenses.*
11. **Appendix A:** Provide a copy of your official transcript.

A 3-5 minute oral presentation to the BSCI faculty is also required before initiating work on the research thesis. This oral presentation will occur after the student has submitted the Undergraduate Research Thesis Approval Form with the written Research Thesis Proposal attached.

RESEARCH THESIS PROPOSAL EVALUATION CRITERIA

All submitted proposals will be evaluated on the basis of the following criteria:

- Is the proposed research feasible and beneficial?
- Is there a clear outcome for the project?
- Are student's expertise matches with the subject area of research?
- Are research objectives achievable within the given timeframe and budget?
- Are the research findings adding value to the body of knowledge?

CONTENTS OF THE RESEARCH THESIS

The final research thesis shall comprise of several chapters and should be between 10,000 and 12,000 words (excluding references and appendices). A typical composition is as follows:

Cover Page

The cover page should depict the following information:

- Thesis Title: Title should be brief and self-explanatory (30 words max).
- Student's name and contact information
- Faculty supervisor name

Abstract/Executive summary

The abstract should be approximately 500 words in length. Its purpose is to give an indication of the contents of the whole work. It is a very brief summary and allows anyone interested in the research topic to read the objectives, methods, results and conclusions at a glance.

Acknowledgements

It is courteous to acknowledge helpful people and organizations who have supported the work throughout.

Table of Contents

Table of Contents should contain the headings and sub-headings of the chapters, together with other sections of the report.

Chapter 1: Introduction

This chapter should provide the following information:

- A brief description of the research problem you have chosen to investigate (and the logical argument for why you think it is important to investigate it). This should include references from published work.
- Research aim
- Research objectives OR Research questions
- Scope
- Any perceived limitations of the research.

Chapter 2: Literature Review

The literature review should be carefully structured to provide a comprehensive review of the current state of the art with regard to the chosen research topic area. The format of the review should follow a logical sequence of sub-topics discussed under suitable sub-headings. It should commence with an introductory section describing the sub-topics and their sequence.

Thereafter each sub-section will deal with a sub-topic, using the work of published authors, authoritative in their fields, to construct a critical review of current knowledge in the field. The review will aim to identify and highlight specific issues surrounding the research topic, and it will conclude with a brief summary of these issues.

Chapter 3: Research Design/Methodology

In this chapter, you will discuss and demonstrate the design of a suitable collection instrument intended to collect primary data for the research. This usually takes the shape of a single case study, multiple case studies or a survey design. The chapter commences with a re-statement of the specific issues, selected for further investigation, from those that were summarized in the previous chapter. Following this chapter introduction, you should describe the research methodology and techniques you have chosen to investigate these issues, explaining why these methods are the best way to carry out the investigation.

The detailed design of the data collection instrument follows. If case studies are proposed as a method, the research design should include a case study protocol which defines the parameters and criteria for selecting the case study units (i.e. construction projects, construction organizations, all stakeholders related to a project).

Chapter 4: Results and Discussion

Present research results in a tabular or graphical format. Elaborate your main findings and discuss their significance. Do not confuse information, results and conclusions. The results are those which are deduced from the data or information presented. There must be a direct relationship between data and results. One must flow logically from the other. At the end, difficulties encountered in the research process should be identified and discussed.

Chapter 5: Conclusions and Recommendations

This is the most important part of the thesis. The overall quality of the thesis will be demonstrated in this section. In the conclusions it must be clearly demonstrated whether or not the research objectives have been achieved. The proof that it has been achieved should be in the body of the thesis. This must now be used to convince the reader. Every discovery, implication and consequence must be presented in a detailed logical and readable manner. At the end, include recommendations for industry practitioners and researchers.

References

The Harvard referencing system (in correct format) must be used throughout the report. A list of references should be provided, in alphabetical sequence of Author name. The name of any author referred to in the text of the report should be included in the list. Conversely, no author names should appear in the list if they have not been referred to in the text. Please use the following link to learn about Harvard referencing style:

<http://www.ascjournal.ascweb.org/journal/style08.html>

Appendices

Other Appendices should be limited to material essential for understanding the report. Supporting material in other media, such as photographs, videos, etc. may also be submitted with the report if necessary. Consult your faculty supervisor about the appendices.

Format

The **format** of the report should be:

- Letter paper size (8 ½ x 11).
- 1 inch top, bottom, left and right margins. Fully justified text, without indentation.
- 11 point Times New Roman font for text material (with 14 point bold for chapter headings; 12 point bold for section headings; 11 point bold italic for sub-section headings).
- Single line spacing.
- Page numbers at bottom centre.
- Tables and figures properly labelled and sequentially numbered in each chapter (e.g. Table 2.1, Table 2.2, Table 3.1 etc.; Fig 2.1, Fig 3.1, Fig 3.2 etc.).

The Expected Length

The main body of the research thesis should range **between 10,000 and 12,000 words**.

Remember, **quality** is more important than quantity - use words wisely to communicate as clearly as you can. The word count does *not* include appendices or references. The whole report should be formatted as ONE SINGLE WORD FILE. Two bound hardcopies of the **FINAL** report should be submitted to the faculty supervisor.

THESIS ASSESSMENT

The student is required to submit final draft in Week 12 of the graduating semester. On approval of the final draft, the faculty supervisor will schedule the presentation. The final grade will be decided using the following criteria:

Item	Submission	Assessment value	Expected Outcome
1	Introduction	10%	Clear understanding of the subject matter and relevance of issues. A clearly defined aims and objectives. The research is significant, focused and has a well-defined scope. All irrelevant issues are excluded.
2	Literature review	15%	Comprehensive review of literature. Significant sources are evaluated and synthesized. Literature review has significant influence on methodology.
3	Research methodology	10%	A robust method of data collection is adopted that is appropriate for answering the research question. Data is pertinent to the research question and the sample chosen is significant. Method of data collection is robust and relevant to answering the research question.
4	Results and discussion	15%	High level of data analysis. Analysis is specific and relevant to answering the research questions.
5	Conclusions and recommendations	10%	The derived conclusions are relevant and logical. Recommendations are convincing and practical.
6	References and Appendices	5%	The list of references is correct. All secondary data is present in the appendices.
7	Research impact and value	15%	The presented research is valuable and publishable.
8	Final report	10%	The report is written in correct English and formatted according to the provided guidelines.
9	Final presentation	10%	The final presentation was comprehensive. The student was able to answer all relevant questions.

ROLE OF THE FACULTY SUPERVISOR

The students must realize that the thesis is mainly in their hands. They have to identify the objectives, undertake the study and demonstrate the level of their ability. The quality of the relationship between the candidate and the faculty supervisor depends upon how well he/she can make use of the supervisor's technical expertise without losing control of the direction of the project/thesis. The supervisor will give firm advice on the standard that the student is achieving as he/she proceeds. If the amount or quality of work is below what one would expect of a final year undergraduate, the supervisor will tell the candidate, the initiative is then in the hands of the candidate. It is naturally acceptable for students to use supervisors' opinions as a part of their work provided that the source is properly attributed and the opinions are not passed off as the students' own.

- Major responsibilities of the supervisor include:
 - To help you develop your research topic;
 - To help you focus on your aim and objectives;
 - To provide you guidance about your research design;
 - To approve your questionnaire and/or interview questions;
 - To guide you about data analysis techniques; and
 - To discuss and monitor your progress at all stages.

- Supervisors are not obliged to:
 - Proofread your work;
 - Teach you a computer software or a data analysis technique;
 - Develop your questionnaire or interview questions; and
 - Prejudge your thesis grade.

PLAGIARISM

If sections of the work are not referenced, they are assumed to be original work of the writer. If the work, ideas etc. have been obtained from someone else, presenting that work as the writer's own is **plagiarism** and it will be treated **very seriously**. Plagiarism, the taking and using of others ideas or writings with the intention of passing them off as your own, is academically and morally indefensible. A student may receive an **F** grade if his/her work found to be plagiarized.

QUESTIONS/QUERIES:

If you have any questions about the research thesis, please contact one of the following professors:

BSCI Undergraduate Research Committee

1. Professor April Simons (Chair)
2. Dr. Wesley Collins
3. Professor Jeff Kim
4. Professor Lauren Redden
5. Professor Alan Bugg

SUGGESTED APPROACH

It is suggested that the following stages are involved in the development of a research thesis:

- a) Do a literature search from journals and other publications using the internet search, and the library facilities and also from newspapers, previous studies, dissertation etc. i.e., find out what has been previously written relating to your topic.
- b) Establish the clear objectives for the study. Remember that the project is a controlled piece of work, and that without an objective there can be no control.
- c) Prepare a research plan i.e., list all the work you foresee need to be done to complete your research and arrange them in the order they need to be done. Be prepared to change this plan as your research develops.
- d) Read and sift information and prepare rough notes under the main headings decided upon.
- e) Carry out site visits (if needed) and prepare notes for inclusion in the study.
- f) Allow a reasonable amount of time for writing up, bearing in mind that it will probably be found necessary to re-write some parts several times before satisfaction is achieved.

ACKNOWLEDGEMENTS

For preparing this document, the undergraduate research thesis guidelines of the following programs have been consulted.

1. Final Year Research Project Guidelines, School of Property, Construction and Project Management, RMIT University, Melbourne, Australia.
2. Undergraduate Research Dissertation Guidelines, School of the Built Environment, University of Salford, Salford, UK.
3. Guidance Notes for Final Year Project for Undergraduate Program, Department of Building and Construction, City University of Hong Kong, Hong Kong.
4. Guidelines for Final Year Undergraduate Project, Department of Building and Real Estate, Hong Kong Polytechnic University, Kowloon, Hong Kong.
5. Instructions for Final Year Project, Department of Civil Engineering, University of Engineering and Technology, Lahore, Pakistan.

APPENDIX A: BSCI 4990 – UNDERGRADUATE RESEARCH THESIS APPROVAL FORM (VERSION 8-15-2019)

This form is to be submitted directly to the BSCI Office, along with your complete Research Thesis Proposal and official transcript. The student is encouraged to submit any supporting data collected on a USB drive in PDF Format. After the project has been approved, the BSCI Office will return a copy of this form and the attached USB to you, as well as retain a copy for filing. If disapproved, the form and USB will be returned to you. The BSCI Office phone number is (334) 844-4518.

Today's Date: _____ Semester & Year you will be enrolled in Thesis: _____

Full Name of Student (as in AU Access): _____

Title of Research Thesis Project: _____

Name of Research Thesis Instructor/Supervisor: _____

Cumulative GPA as of the end of last semester: _____ (obtain from Academic Advisor)

Academic Advisor Signature: _____ Date: _____

Attach a copy of your official transcript to your submission per proposal instructions.

When submitting this proposal:

- (1) I have read and understand the "Instructions for Undergraduate Research Thesis"
- (2) I acknowledge the workload of completing an Undergraduate Research Thesis project is equivalent to (or more in some case) to a traditional thesis project.

Additional Student Comments: _____

Student Signature: _____

BSCI Office Receipt Date: _____ Received/Logged by: _____

Research Thesis Instructor/Supervisor Approval: _____

Date Presented to BSCI Faculty: _____ **Approved / Disapproved**

General Comments for Student: _____

Completed by AU BSCI Office

Completed by AU BSCI Office

APPENDIX B: AUBURN UNIVERSITY UNDERGRADUATE RESEARCH FELLOWSHIPS

Auburn University provides limited undergraduate research fellowships to eligible students based on their academic standing and merit of their research proposal. Brief details of this fellowship program are as follows:

Fellowship requirements

A cumulative grade point average of 3.0 or better is required to apply. In order to maintain the fellowship, a semester grade point average of 3.0 or better must be maintained.

Time commitment for fellowship

During any semester, the amount of time performing research should be equivalent to that spent for an intensive experiential learning/practicum or for a 3 credit course that has 6 hours of laboratory.

Application process

To complete an application, a statement of a student's interest in research and long term goals is required. The application form will require information regarding the student and his/her academic and experience background. The student will be asked to describe their research question and research plan. The student and faculty mentor should apply as a pair. Two letters of recommendation are required. The mentor may write one of the letters of recommendation. The semi-finalists will be interviewed after which the finalists will be selected. See Appendix A for the Application Form.

Reporting requirements

Fellowship students are required to give an oral presentation, typically during the Spring semester at the AU Undergraduate Research Forum. At the end of the fellowship, students will submit an abstract, resume, fellowship summary, and an evaluation

Please consult the following website to find more details:

http://auburn.edu/undgres/ugrp_website/index.html

The deadline to apply for AU Undergraduate Research Fellowship is typically Mid-February. Please consult the above-mentioned website to find out the exact date for this year.

Suggested Timeline for Students that Plan to Apply for the AU Undergraduate Research Fellowship:

Semester	Task
Junior (1st semester professional program)	Identify a faculty supervisor.
Junior (2 nd semester professional program)	Submit a concept proposal (1-2 pages) to the faculty supervisor for approval – Week 12
Senior (penultimate semester)	<p>BSCI 5970 Special Problems (substitutes for Construction Elective). – or - Take new 1-hr research class</p> <ul style="list-style-type: none"> • Research Thesis Proposal Submission (Week 10) • Approval to continue Research Thesis (Week 14)
Senior (graduating semester)	<p>BSCI 4990 BSCI Research Thesis BSCI 5970 Special Problems (substitutes for Construction Management Elective)*</p> <ul style="list-style-type: none"> • Submission of thesis: Week 12 • Presentation: Week 14