Master’s Project/Thesis and Graduation Requirements
Master of Health Informatics

Completing a master’s degree project or a thesis is a requirement of the MS in Health Informatics degree at IUPUI. You’ll complete this non-independent work under the close supervision of the master’s project/thesis committee.

Thesis or Project?

To decide which to choose, it is important to know the differences between the thesis and the master’s project.

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<tr>
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<th>Thesis</th>
<th>Project</th>
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<tbody>
<tr>
<td><strong>Preparation</strong></td>
<td>Prospectus submitted for approval to Committee and to Graduate School</td>
<td>Prospectus/Proposal submitted for approval by Committee</td>
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<tr>
<td><strong>Process of data acquisition or activity</strong></td>
<td>Design and conduct experimental, historical, qualitative, descriptive, or descriptive research</td>
<td>Execute the proposed activity</td>
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<td><strong>Process of interaction with graduate faculty</strong></td>
<td>Independently created and completed effort</td>
<td>Creative process with faculty critique</td>
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<td></td>
<td>Include data collection, analysis, and synthesis</td>
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<tr>
<td><strong>Result</strong></td>
<td>Produce written paper that includes review of literature, description of and data analysis, subjects and setting, and discussion</td>
<td>Recital, performance, exhibition portfolio, or other project; written or electronically recorded documentation</td>
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<td></td>
<td>Demonstrates critical and/or creative thinking</td>
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If your goal is to earn a PhD and enter academia, completing a master’s thesis is likely to better prepare you for doctoral research and dissertation, in terms of research design; qualitative and/or quantitative methods; and understanding the related academic literature in your field.
However, if you plan to go into industry, you may be better served by doing a master’s project in collaboration with an industry partner. You’ll be able to apply your project work directly in practice, and it will improve your skills in achieving outcomes that will prove valuable to your career.

**What to Expect**

By the end of the first year, the student will select a master’s project/thesis Committee chair who is a member of the graduate faculty and has an appointment in the School of Informatics and Computing (SoIC). This individual will assume responsibility for advising the student about course selection, graduation requirements, and master’s project procedures.

Project/thesis possibilities include, but are not limited to:

- Developing a project that fits into a larger framework
- Systematic review
- Piece of an ongoing research project
- Substantial background literature review

If a master’s project or thesis is related in any way to your professional work, you must describe for your advisor how that topic and your job are distinct. You must be able to explain how the work you’re doing as a part of your master’s project or thesis goes above and beyond what you ordinarily do for your job.

**General Guidelines to Follow:**

- Students must have a brief project or thesis plan before meeting with an advisor.
  
  **Need help coming up with ideas?** Plan to attend the project workshop held weekly by department (schedule is to be added).

- Students can start working on their project or thesis after the first year, but can only earn credit for it after completing the required course work (27-33 hours).

- Fill out the **Pre-Assessment Form**, and get the form signed and approved by the master’s project/thesis Committee chair before registering for INFO-B 691.
• Enroll for either the [INFO B691 Project](#) or [INFO B691 Thesis](#) class under the committee chair to proceed with the work.

• **Note:** Approval from the [IUPUI Institutional Review Board](#) (IRB) is required if you plan to conduct a study using human subjects or clinical data in any way. Many informatics projects will be exempt from full IRB review. However, the IRB must grant the exemption. Research with human subjects that is not approved by the IRB constitutes scientific misconduct and is subject to disciplinary action. The student is responsible for obtaining IRB approval. This process should be started as soon as possible during the first step of master’s work. Direction on how to get approval or exemption by IRB can be found at Kuali Coeus (KC) at [One.IU](#).

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### Step-by-step process for a master’s project or thesis

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<tr>
<th><strong>Project</strong></th>
<th><strong>Thesis</strong></th>
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</thead>
<tbody>
<tr>
<td>1. Meet the Primary Project Advisor and discuss the topic of interest for Project.</td>
<td>1. Meet the Primary Thesis Advisor and discuss the topic of interest for Thesis.</td>
</tr>
<tr>
<td>2. Selection of the Project committee consisting of Project committee chair, one faculty advisor.</td>
<td>2. Selection of the Thesis committee consisting of Thesis committee chair, one faculty advisor and an external/internal thesis advisor.</td>
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<tr>
<td>3. Discuss the topic of interest with the Project committee. Develop the scope, duration and the resource requirement of the project.</td>
<td>3. Discuss the topic of interest with the thesis committee. Develop the research question, research design and the intended outcomes of the thesis.</td>
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<tr>
<td>4. Submit the approved Project pre-assessment form.</td>
<td>4. Submit the approved Thesis pre-assessment form.</td>
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<tr>
<td>5. Follow the guidelines for project below.</td>
<td>5. Follow the guidelines for thesis below.</td>
</tr>
<tr>
<td>Project</td>
<td>Thesis</td>
</tr>
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<tr>
<td>6. Project presentation to the project committee, other faculty members and peers.</td>
<td>6. Thesis defense to the thesis committee, other faculty members and peers.</td>
</tr>
<tr>
<td>7. Incorporate changes required as suggested by the Project Committee members and other faculty members.</td>
<td>7. Incorporate changes required as suggested by the Thesis Committee and other faculty members.</td>
</tr>
<tr>
<td>8. Submit the final version and await for comments and grades from the Project Committee.</td>
<td>8. Submit the final thesis write-up and wait for comments and grades from the Thesis committee.</td>
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**Guidelines for the MS Project:**

- You will work during the second step with your master’s project Committee. It is important that you meet with your master’s committee on a regular basis, such as once every week or two (not less than once a month).
- During this period, you must prepare your final write-up. While there’s no strict restriction on length, it’s typically around 40-50 pages, and must be complete and formatted in APA style. (Sample is provided on SOIC website).
- Once the project has been completed and written up, it will be submitted to the Master’s Committee for approval, at least two weeks before the end of the semester. If the final project is not completed and submitted by this time, the student will automatically receive an “F” and will have to retake the course.
- You must present your project before a faculty and peer group on the last Friday of the semester (date and time will be decided by week 4 of the semester). You will have 15 minutes to present your work and 5 minutes for Q&A.
- You will make any corrections requested by the Master’s project committee during the presentation. Follow project guidelines for document formatting requirements.
• The final submissions of the Master’s Project include:
  o Revised technical report (box link)
  o Presentation (can be in the form of a PPT or other types of media)

Guidelines for the MS Thesis:
• You will work on the main Thesis once you’ve submitted the pre-assessment form to the Academic Advisor.
• You’ll meet with your Thesis committee chair and members to update and to evaluate the progress of the work. This will help in understanding the roadblocks of the work in progress and prepares you for the planning a way around or redoing work if required. “Prevention is better than cure!”
• While working on the thesis, you’ll develop the formal thesis write-up and review it with the Thesis committee. The final write-up is often around 80-100 pages (with multiple chapters).
• You’ll submit the final write-up along with the thesis defense before the semester ends. Changes to the write-up will be included before the submission as per the Thesis committee suggestions.
• The final submissions of the Master’s Thesis include:
  o Revised Thesis (box link)
  o Presentation (can be in the form of a PPT or other types of media)

Outline of a well written Thesis/Project includes:
• **Abstract:** A summary of the objectives and accomplishments. Typically 1 page.
• **Objectives:** Describe the problem you set out to solve and the solutions you have achieved
• **Introduction**: Describe the main concept of the thesis/project. Establish the context. Discuss why this problem is important. Briefly describe the problem and development process you will follow.

• **Background and Literature Review**: Provide a survey and a critical review of related prior work.

• **Analysis and Requirements**: Describe the problem, enhanced with theoretical model to support your research /project design. Describe the research questions (quantitative) and or the phenomena of interest (qualitative).

• **Design**: Describe the research design, including the sample size the research context. If applicable, describe software reuse, design patterns, special coding techniques, etc. Describe your rationale for the design decisions with supporting data collected from prior studies. Describe the specific tools and techniques used in subchapters if applicable.

• **Results**: Describe the results from your research/Project. Describe unexpected finding, outliers, if any.

  **Validation of results**: Describe the validation approach. Describe sample test plans and test results.

• **Discussion**: Describe how your research/project solved, addressed or explained some the issues defined in the background and literature review

• **Conclusions**:

• **Appendices**:

The individual sections of the project and thesis differ accordingly and samples of can be accessed via the following links:

   [Sample Project Report](#)

   [Sample Master Thesis](#)
The Characteristics of a Good Thesis

It is important when writing a thesis to consider those who will eventually read it. In the immediate future these may be the examiners, but later, when the thesis is bound and in a library, many future students may read it. A thesis is a long and complex work, and it is helpful if it can be written and structured so that readers are able to navigate their way through it reasonably easily.

It should be written in a clear style which, while doing justice to the academic requirements of the subject, does not use unnecessary jargon. It often helps if the thesis is subdivided into chapters and sections so that the reader can readily follow the developing argument. There should be an easily followed thread of argument running through the thesis, so that readers never reach a point where they are unsure how one section has led to another. To sum up, the thesis should be coherent. The issue of writing for a specific reader is discussed in Northedge (1990, p. 166).

The thesis should have clear aims which are enumerated near the beginning and which provide a rationale and framework for the remainder of the work. The thesis then sets out to explain the way in which the research meets those aims. If some aims are only met partially, then this also is explained. Finally, the conclusion reviews those aims, and discusses the ways in which they have been addressed. In a sense, the aims act as an integrating link throughout a good thesis, setting out the intentions of the research at the beginning and providing a focus for the results and conclusion at the end.

The aims are also very important in influencing the choice of theoretical perspective and methodology. The overall research design should be appropriate to the aims. For example:

- If the aims of the study are to examine broad trends across a number of different high schools, then the research design needs to use survey techniques (possibly questionnaires).
- If the research intends to explore the social context of a group of teachers in a single school, then a case study, ethnographic, or interactionist perspective may be more appropriate.
Unstructured or semi-structured interviews may be selected as the data collection procedures. In terms of writing the thesis, it is important to make these connections clear, and to demonstrate the way in which the research design has evolved from the need to address the aims.

Within the thesis, there should be an adequate review of the relevant literature. The literature selected should be sufficiently contemporary to demonstrate the way in which the thesis is building upon recent research. While there will undoubtedly be extracts from different studies and articles, these should not be so numerous that they obscure the prose you write. You need to achieve a balance between the number and length of quotations, and the main text of the thesis. Quotations and extracts should supplement the arguments of the thesis.

While these macro issues in writing are important, you also should pay careful attention to detail. Small errors can be very noticeable. Proofread the thesis carefully, to keep typographical, punctuation, and grammatical errors to a minimum. Check referencing carefully, so that details of works cited match in different parts of the thesis. Consistency is very important. In a good thesis, there will be consistency in the way the thesis is written and structured. This applies, for example, to the spelling of technical terms, to the use of acronyms, and to the way in which subsections are set out and numbered.

Start the thesis with a clear and well-written abstract. Many readers in a library will read the abstract before deciding whether or not to read the whole thesis. The abstract should provide succinct overview of the whole research project described in the thesis. It should summarize the context of the research, the aims and research design, the results and the conclusion.

Finally, it is important not to forget the title. Rather like the abstract, this encapsulates the nature of the thesis. Writing a good title is almost an art form in itself. The title should not be excessively long, but it should describe precisely the nature of the thesis, and ideally include some of the key words associated with the subject of the research.
Although we will revisit many of these issues later, it does help at this stage to have an idea of some of the broad features of a well-written thesis. A typical structure is described in Barnes (1995, p. 130).

**In a Nutshell**

Characteristics of a well-written thesis:

- A clear title and abstract that accurately and succinctly reflect the nature of the research study.
- A structure and format that help the reader to absorb the subject matter.
- An intellectual coherence that starts with precise aims, from which follow the research design, and a clear conclusion.
- Accuracy in grammar and punctuation.
- Consistency in referencing presentation and the use of terms.

References
