APPENDIX T: GUIDELINES FOR A THESIS RESEARCH PROPOSAL

Masters of Science
Clinical Laboratory Sciences Program

Name of Candidate: .................................................................
Name of Thesis Director: ...........................................................
Track : ..............................................................................
I. Topic of research proposal
The student chooses with his/her thesis-director a topic in any area related to Clinical Microbiology or Diagnostic Molecular Biology depending on the chosen Track.

II. Design of research proposal
The student may choose in his proposal any experimental design to answer his research question or demonstrate his hypothesis. The research proposal may not rely solely on existing data, but may use such data to generate new data. The methodology proposed is expected to help in either proving or denying the postulated hypothesis.

III. Criteria and guidelines for writing a research proposal
An approved research proposal is an intellectual scholastic contract between the student and the research committee. It specifies what is exactly expected from the student. This specifically allows the prospective Thesis Committee to evaluate the student during his defense based on what he originally proposed. It is highly recommended that full time students submit their research proposals within one year of enrollment in the program.

The details of the research proposal should meet the following guidelines: a brief oral presentation, a written document including a research plan, a thorough literature review, a timetable, and a statement of the resources required to complete the project. The Research Committee, having attended the presentation and examined the written proposal, will make recommendations accordingly.

IV. Detailed outline for the research proposal
The proposal should be divided into 9 sections; the length of sections 1-6 must not exceed 15 double-spaced pages of 12 point type.

1. Title: Give a title to the research proposal. The title should be concise and clear. From the title, the reader should be able to predict fairly accurately what the project will be about.
2. **Abstract:** should not exceed 400 words and should provide a concise summary of the proposal.

3. **Introduction:** A thesis should contain an Introduction Section which gives background information and a setting to the problem of the proposed research. It is in this Section that the applicant comprehensively reviews the literature pertinent to the problem: to show what other people have published on the problem (citing specific authors where appropriate), what gaps of knowledge still exist, and what additional research needs to be done. It is also in this section that the candidate demonstrates his/her mastery of the theoretical subject matter in the research area, and where he/she presents the hypotheses to be tested in the proposed research. Often it is useful for the applicant to divide the Introduction section into sub-headings to include:

3.1 **General Introduction:** Defining the problem area

3.2 **Statement of the Problem:** Delineation or identification of the problem.

3.3 **Purpose/Objectives:** state clearly in bullet points the specific objectives.

3.4 **Significance of the study:** Elaboration of the importance of the study and advantages to be derived. How this study will add to the body of knowledge.

3.5 **Literature Review:** Focusing on findings of particular relevance to the postulated hypothesis.

3.6 **Hypotheses/Research questions:** Questions and propositions summarizing the applicant's expected findings in the proposed research, and presenting a clear rationale for each hypothesis or research question. For every hypothesis, variables to be measured/tested should be clearly stated. Hypotheses can be directional or non-directional; they can be a statement regarding the relationship between 2 variables (descriptive studies) or analytical statement a cause-effect relationship

4. **Materials and Methods**

A thesis proposal should contain a section giving details on the materials and methods proposed to be used when conducting the research. The location(s) where the proposed research will be carried out should also be given in this section. If particular instruments are to be used, their details and specifications should be presented. If the data are to be collected through sampling, then the research design and sampling procedures should be described. If questionnaires will be
used, samples of the proposed questionnaires should be presented. If standard methods will be used, then full references to them should be given. In case new methods have been developed by the applicant, these should be described in sufficient detail. In all cases, the data analysis plan should also be included. If any limitations to the proposed methods are known, then these should be pointed out. Specifically this section is divided into:

4.1 **Design:** What approach will you take to answer your research question or hypotheses? and why? The method must be consistent with the stated research question. State what design will be used for the proposed research.

4.2 **Setting:** Where you planning to collect your data and why

4.4 **Sample:** What population have you chosen? and why? Define the inclusion criteria and exclusion criteria for your sample. State how you will recruit participants to be in the study and what sampling method you used. You also need to state how the sample size was determined (power analysis).

4.5 **Procedure:** How will you actually conduct the study? Explain exactly what data will be collected, how they will be collected and who will collect them.

4.6 **Variables:** Define the variables of interest for the study and provide both conceptual and operational definitions. Explain why you believe the tools used to measure variables are valid and reliable. Specify the Independent, dependent, intervening and extraneous variables.

4.6 **Institutional Review Board (IRB):** Report if the proposal already has IRB approval. If not, discuss how you will obtain IRB approval for the study. Address the risks and benefits of the study and how you will protect the participants’ confidentiality.

4.7 **Instruments:** what instruments are you going to use to gather data? Report the validity and reliability of each instrument.

5. **Statistical analysis:** Describe the statistical tests planned and the probability level set for statistical significance. There must be consistency between the data obtained and the statistical tests used (i.e., parametric statistics require interval level data, whereas non-parametric statistics can be used for nominal and ordinal data). There also should be a consistency between the research questions and the statistical tests used to answer those questions.

6. **Limitations of study:** what may be the limitations of your study? What would your recommendations for future studies be?
7. References:

The Uniform Requirements style for references is based largely on an American National Standards Institute style adopted by the American National Library of Medicine (NLM) for its databases. Authors should consult NLM’s Citing Medicine for information on its recommended formats for a variety of reference types by consulting Appendix V or visit URL: http://www.nlm.nih.gov/bsd/uniform_requirements.html

➢ References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses.
➢ References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.
➢ The titles of journals should be abbreviated according to the style used in the list of Journals Indexed for MEDLINE, posted by the NLM on its web site.
➢ Within the text, references should figure within parentheses in numbered references following the text at the end of the sentence.

8. Budget:
This section should give the source of funds required for the proposed research and also the proposed budget.

9. Timetable:
This section should give the total time within which the research is expected to be completed, and also a time-table showing the sequence of the research activities.

V. Evaluation of research proposals

The student would first submit his/her proposal to the library. The library has a max of three days to give the student a report concerning the proposal format. If no modifications are requested the student would then submit his/her proposal to the research committee secretary.
The committee would evaluate the submitted proposal based on scientific value and academic merit according to the “Thesis Research Proposal Guidelines”. The committee would meet at least once every academic term to discuss and evaluate submitted proposals. Students may be asked to present their work during the meeting. Students should submit their proposals at least 20 days before the committee evaluation meeting. All members of the committee have an equal opportunity to express their concerns and provide their comments in the evaluation process. The committee chairperson cannot use his/her position to influence other committee members. Members must exercise their independent judgment having in mind the best interest of students, as well as their background, abilities and qualifications.

**Decision-Making**

The Secretary is expected to set a date for an evaluation meeting and to convene the committee to evaluate submitted proposals according to deadlines set for each academic term. Committee decisions would be made by voting. Votes may be cast as satisfactory, satisfactory pending modifications, or unsatisfactory. Normally, a simple majority of votes cast will be required to approve the proposal. The committee chairperson votes along with the other committee members. Absentee voting is permitted prior to the meeting. In the event where two or more members vote unsatisfactory, the proposal would be rejected. In the event of a tie, the chairperson would cast the deciding vote.

**Notifying Students**

The chairperson is expected to communicate decision, along with comments, to the student in writing within 7 working days following the evaluation meeting. Under thesis-director supervision, the student is expected to address the comments and points raised by the committee to obtain final approval and signature of the committee chairperson based on the committee’s decision (Appendix R). Normally, final approval should be obtained within one week of completing all required revisions.

**Other Regulations**

The student is encouraged to involve other faculty members or scientists from outside the committee, or the program, for additional input and suggestions. Any future major divergence
from the original approved proposal should be communicated to the research committee for review and approval.
1. To be filled by student

| Name of Student: ___________________ | Student ID: ______________ |
| Faculty: __________________________ | Program: ________________ |
| Semester: _______________          |                           |
| Proposal submission date __________ |                           |

2. To be filled by Librarian

| Name of Librarian: ___________________ |
| Required corrections are approved: _____ YES_____ NO |
| Proposal approval date _______________ |
| Librarian Signature ___________________ |
Checklist for Research Proposal Evaluation

Please rate each criterion based on the assigned numerical weight.

<table>
<thead>
<tr>
<th>Score</th>
<th>Weight</th>
<th>Evaluator comments (satisfactory, needs modifications, etc.)</th>
<th>Criterion</th>
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<td>5</td>
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<td>1. Title &amp; Abstract: gives a concise overview of the study</td>
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<td>2. Literature Review</td>
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<td>3. Research question/hypothesis</td>
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<td>4. Significance or relevance of proposed research</td>
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<td>5. Specific aims &amp; Objectives</td>
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<td>6. Methodology: experimental design and techniques</td>
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<td>7. Format: meeting guidelines</td>
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<td>8. Budget &amp; Timeframe: Realistic</td>
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