

Thesis and Oral Exam Grading

Thesis Experimental Description:

- 1 – Outstanding. All experiments were clearly described and their rationales explained. Understandable by a general science reader. Description conveyed more than sufficient information to repeat the experiments.
- 2 – An excellent summary of the experimental procedures. A knowledgeable reader could repeat the experiment with little difficulty.
- 3 – A very good description of the experimental procedures. A knowledgeable reader could understand and repeat the experiments with some effort. The rationale was not always clear. There were some instances where the author assumed knowledge on the part of the reader, or used lab jargon.
- 4 – A good summary of the experiments. Occasionally, relevant experimental details were either inappropriate or missing. The experiment would be difficult to repeat. The author used a lot of lab jargon without explanation.
- 5 – A poor description of the experiments. It would be impossible for a knowledgeable reader to reconstruct the experiments.

Thesis Results:

- 1 – Outstanding. Results were presented in a logical, effective and creative manner. Data were presented accurately and clearly and could be easily understood by a general reader. Controls and their significance clearly and thoroughly described. Conclusions were valid, insightful and not over-interpreted.
- 2 – Excellent. The data are described accurately and completely. Conclusions about data and controls were appropriate and not over-interpreted, but not particularly insightful or thoughtful.
- 3 – Very good. Data were presented in an effective manner. Most of the conclusions about the data and controls were solid, but in rare occasions may lack accuracy. A general reader might have minor difficulty following the conclusions.
- 4 – The results section is a collection of data with little information to explain the significance. Some portions were unclear or missing. Data were presented in a confusing or incomplete fashion. The author may have misunderstood some of the results, or failed to include or communicate them in an effective manner. Some conclusions may not have fit the data or were absent (under-interpreted).
- 5 – Little attention beyond a quick statement of the results. Missing context or controls. The author did not understand data or failed to draw conclusions.

Thesis Discussion:

- 1 – The author provided an in-depth analysis of the results and demonstrated exceptional insight into the broader implications. The student was thinking about experiments, results and future directions at the level of a professional in the field.
- 2 – The author provided an excellent critical analysis of the data. Interpretation went significantly beyond the simplest interpretation. Contained several good ideas for future work.
- 3 – The author provided a very good discussion of the results but stayed mostly within the bounds of current thinking. Provided one or two good ideas for future work.
- 4 – The author provided a limited analysis of the data; however, the author mostly reiterated the results without further expansion. Made a limited attempt to suggest future experiments or directions.
- 5 – The author failed to provide a thorough critique of the experiments and results. Made an unsuccessful attempt or failed to explain future directions.

Thesis Scholarship – This thesis:

- 1 – Is a model of impeccable scholarship. The background material has been thoroughly researched and properly referenced. It is an authoritative assessment of the relevant primary literature. The author has mastered the issues and integrated them to make an original and complete intellectual contribution. The author has provided the reader with the relevant information to understand the significance of the problem at hand.
- 2 – Shows careful scholarship and frequently cited the primary literature. The author has mastered most of the relevant material and has integrated it well to set up the thesis research.

Laboratory Thesis – Reader’s evaluation form

Evaluation of the thesis work and the written document

Originality – This student’s thesis:

- 1 – Demonstrated exceptional originality.
- 2 – Clearly went beyond the literature in several areas.
- 3 – Contained one or more good ideas that extended the current thinking.
- 4 – Stayed within the bounds of current thinking from the literature.
- 5 – Was basically a repeat of other ideas or discussion without modification.

Completion – This thesis:

- 1 – Is a complete story and essentially publishable in its own right.
- 2 – Needs just one or two additional experiments or controls to get it ready.
- 3 – Contains most of the elements of a nice result that someone should follow up.
- 4 – Is not complete enough to decide whether there is a result or not.
- 5 – Is obviously incomplete.

Quality – The experimental work by this student:

- 1 – Was beautiful, clear-cut, and well-controlled, equivalent to an excellent graduate student’s.
- 2 – Was clearly superior, perhaps equivalent to most graduate students.
- 3 – Was average, several nice experiments but with occasional problems in consistency, or reproducibility.
- 4 – Was more often than not sloppy and uncontrolled.
- 5 – Was essentially without merit, no believable or controlled experiments.

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Thesis Scholarship – This thesis:

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- 2 – Shows careful scholarship and frequently cited the primary literature. The author has mastered most of the relevant material and has integrated it well to set up the thesis research.
- 3 – Shows average scholarship. The author accurately presented findings from the literature, but relied heavily on reviews rather than primary sources. The significance of the thesis research may not be immediately clear to an outside reader or may be difficult to extract because of excessive detail.
- 4 – Shows below average scholarship. The author has mastered only a part of the relevant literature. Significant parts of the thesis are not supported by cited material. References are almost exclusively reviews and secondary sources. Important material has been neglected. Not enough information has been provided to understand the thesis research question.
- 5 – Shows seriously poor scholarship. The author knows or understands little of the relevant literature or has made major errors in interpretation and/or citation.

Thesis Writing – This thesis:

- 1 – Is a pleasure to read. It is crisp, clear and concise. Needs no editing and reads as though it has been written by a professional in the field.
- 2 – Is easy to read, needs only minor editing. Represents excellence in student writing and appears to be the end product of multiple drafts.
- 3 – Is well written, but requires revisions and editing. Usually clear, but some sections need to be re-read to get at the meaning. Reads like a good, proof-read draft.
- 4 – Is poorly written. Significant portions are sloppy or unclear. There are many misspellings and ambiguities. Reads like a rough draft.
- 5 – Is very difficult to read. Most sections are unclear, ungrammatical and convoluted. Unquestionably a rushed draft that has not been proof-read.

Overall Evaluation:

- 1 – This student was one of the best I have seen, within the top 5%.
- 2 – This student was really excellent, within the top 15%.
- 3 – This student was good but not exceptional, within the top 80%.
- 4 – This student was fairly weak student, within the bottom 20%.
- 5 – This student was one of the weakest I have seen, within the bottom 5%.

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Non-Laboratory Thesis – Reader’s evaluation form
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Originality – This student’s thesis:

- 1 – Demonstrated exceptional originality.
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- 2 – An excellent critical analysis of the findings. Interpretation went significantly beyond the simplest interpretation. Contained several good ideas for future work.
- 3 – A very good discussion of the findings, staying mostly within the bounds of current thinking. Provided one or two good ideas for future work.
- 4 – A limited analysis of the findings. The author mostly reiterated them without further expansion or made only a limited attempt to suggest future directions.
- 5 – The author failed to provide a thorough critique of their findings. Made an unsuccessful attempt or failed to explain future directions.

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- 5 – Shows seriously poor scholarship. The author knows or understands little of the relevant literature or has made major errors in interpretation and/or citation.

Evaluation of the oral exam

Factual/Conceptual Knowledge:

- 1 – Outstanding. This student demonstrated mastery of the larger area of their thesis topic. The student would do well on a graduate level general exam.
- 2 – Above average. The student mastered both the basis of the thesis as well as areas directly related to the thesis. The student would be on the borderline for a graduate general exam.
- 3 – Average. The student has mastered the basic facts and concepts for the thesis. The student knows some of the facts or concepts that are direct extensions of the thesis.
- 4 – Below average. The student did not know or understand some of the basic material for their thesis.
- 5 – Poor. The student exhibited serious deficits in understanding/knowledge of the basis of their thesis.

Ability to Integrate Knowledge/Formulate Hypotheses:

- 1 – Outstanding. The student was remarkably adept at formulating specific hypotheses as well as suggesting well-controlled tests of their ideas. The student could easily integrate material to formulate a fundamental mechanistic model to explain observations.
- 2 – Above average. The student could independently formulate several hypotheses, to integrate disparate concepts. The student could suggest experiments to test the hypothesis.
- 3 – Average. With help, the student could be lead to formulate a specific hypothesis to explain a set of observations. The hypotheses were narrow or simple extensions of given paradigms, or required little integration of additional concepts. The student could be lead to suggest a test of their hypothesis.
- 4 – Below average. The student was able to understand hypotheses provided to explain observations and provided either a test or an extension of the hypothesis.
- 5 – Poor. The student was unable to understand provided hypotheses or to suggest either tests or extensions of the hypotheses.

Ability to Propose Future Directions/Experiments:

- 1 – Outstanding. The student had great/novel ideas about the new/best directions to pursue in areas related to their research.