

Chemistry Department Guidelines for Senior Theses for Chemistry Concentrators

Background

Does the thesis survey and summarize the previous literature relevant to your project? Does it effectively summarize prior work from your group?

Objectives/Questions/Hypotheses

Does the thesis do one or more of the following?

- a) clearly define the objectives of the work that will be described? i.e. *What* did you set out to do?
- b) clearly define the questions being asked, motivation for the project and/or the hypothesis being tested? i.e. *Why* did you do this?

Results and Discussion

Is the work that was carried out described clearly, and are the results interpreted and discussed clearly? Why was a given experiment carried out? What were the results, and what do they mean? Did you consider alternative explanations and did you carry out the appropriate control experiments to distinguish between them?

Are the experiments and their analyses described at a level where an expert in your sub-discipline (e.g. chemical biology) but not necessarily in your specific area (e.g. kinase inhibitors), can follow along.

Experimental Descriptions

Are the experimental protocols and outcomes provided in sufficient detail so that someone else can use them to reproduce and verify your results? What is the level of detail that is expected for a publication in your area?

Conclusions

The thesis should include a conclusion that summarizes your main findings and outcomes. i.e. *What* did you learn. It is also often appropriate and recommended to include a brief discussion for what the next steps in the project should be, based on your findings.

Grammar, Prose, Formatting

Is the thesis well written and readable? Is it formatted so that figures, tables, etc. are easily read and interpreted? Are axes labeled, units included? Is it free of typos?

Citations

Are discussions of previous work adequately cited?

Does the format of the citations follow acceptable guidelines for journals in your field?

Are figures and illustrations taken from or adapted from the literature properly attributed?

Attribution

If the work was carried out in collaboration with other scientists in your lab or elsewhere, clearly indicate your contribution to the work – which experiments did you carry out? What was your role in experimental design and in the interpretation and presentation of data?

INFORMATION FROM THE DEAN OF THE COLLEGE ABOUT THE WRITING REQUIREMENT

Writing Assessment Criteria

Brown expects students to approach their undergraduate studies as an intellectual process that unfolds over time. Growth in writing is essential to this process. Students are therefore required to demonstrate that they have worked on their writing across the four years.

We offer the following criteria to assess competence and to help guide students as they develop their writing skills.

Highly competent writers

- *create coherent and well-developed responses to assignments*
- *demonstrate a high level of critical and abstract thinking*
- *demonstrate a sophisticated appreciation for readers' needs*
- *support their arguments with relevant, detailed, and convincing evidence*
- *logically sequence their paragraphs with content-based transitions*
- *use appropriate diction and tone and constructively vary sentence structures*
- *use correct grammar, punctuation, spelling, and syntax*

Competent writers

- *exhibit moderate ability to think critically and abstractly in response to assignments*
- *clearly attempt to address intended readers' needs*
- *sufficiently organize and develop their ideas so as not to impair the readers' understanding*
- *use loosely- or unclearly-related examples*
- *sometimes use weak transitions between paragraphs*
- *depend upon basic sentence structures, phrasing, and usage*
- *occasionally use incorrect grammar, punctuation, spelling, and syntax, but not to the point where errors impair the reader's understanding of the text*

Writers whose work falls below the level of competence typically

- *exhibit little or no ability to think critically or abstractly*
- *fail to recognize the needs of the reader*
- *fail to answer the questions asked in assignments*
- *depend upon weak generalizations and undeveloped examples*
- *fail to write coherent prose*
- *use imprecise or inappropriate vocabulary*
- *fail to demonstrate sufficient understanding of grammar, punctuation, and syntax*

http://www.brown.edu/Administration/Dean_of_the_College/curriculum/assessment_criteria.php