

Keck Science Assessment Rubric for Senior Thesis in Biochemistry

Student Name: _____

Evaluator Name: _____

College: _____

Term: _____

Learning Outcomes	Superior 4	Good 3	Fair 2	Poor 1	Score
Applies knowledge of chemistry and biology to solve biochemical problems	Student has fully applied knowledge of chemistry and biology to the thesis project and has grounded the project in this knowledge.	Student has discussed foundational principles in biology and chemistry but has not fully applied these principles to the project.	Student alludes to principles of biology and chemistry but connects them to the project in an indirect way.	Student has not connected the project to principles in biology and chemistry.	
Develops hypotheses and tests them using quantitative techniques	Student has clearly developed hypotheses and has used quantitative techniques to test them.	Student has developed hypotheses but has not systematically used quantitative techniques to test them.	Student has not clearly developed hypotheses and/or has used quantitative techniques only to a limited extent.	Student has not developed hypotheses and has not used quantitative techniques.	
Effectively communicates scientific concepts in writing (Articulation)	Each main idea is supported by detailed data or reasoning. All details are related to topic. Complete, correct documentation of a wide variety of sources.	Clear overall though details and/or data in some paragraphs may be vague. Data cited may at times be insufficient to support conclusions. Documentation of a variety of sources.	Arguments presented are not integrated into a coherent flow; some details are irrelevant. Marginal documentation of sources; some key sources may be missing.	Many conclusions/main ideas are not supported by details. Unclear presentation and many details cited are irrelevant. Inadequate documentation of sources.	
Effectively communicates scientific concepts in writing (Style)	Ideas/paragraphs/ sections are connected by effective transition words and phrases. Precise, interesting, and accurate word choice. Writing style enhances readability of writing.	Transitions used. Word choice is adequate to convey meaning.	Few or no transitions. Overall style choppy.	No transitions. Sentence style choppy. Vocabulary limited.	

Learning Outcomes	Superior 4	Good 3	Fair 2	Poor 1	Score
Effectively communicates scientific concepts in writing (Grammar/Usage/ Mechanics)	Free of spelling, capitalization, and usage errors. Few, if any, errors in punctuation. Sophisticated and consistent command of standard English.	Number and type of errors does not interfere with meaning. Few, if any, spelling, capitalization, or usage errors.	Number and type of errors may interfere with meaning at some points. Some spelling, capitalization, or usage errors. Some fragments and/or run-ons. Some errors in punctuation.	Number and type of errors obscure meaning. Frequent errors in spelling, capitalization, and usage. Many fragments and/or run-ons. Serious and frequent punctuation errors.	
Articulates applications of science in the modern world (Student discusses “real-world” applications of science in his/her thesis.)	YES	NO			
Critically evaluates the published scientific literature	Student makes extensive reference to the primary literature and cogently analyzes the conclusions presented in the literature cited.	Student makes reference to the primary literature but does not fully analyze the conclusions presented in the literature cited.	Student makes reference to the primary literature but does not demonstrate understanding of the conclusions presented in the literature cited.	Student has made only limited reference to the primary literature.	

Learning Outcomes	Superior 4	Good 3	Fair 2	Poor 1	N/A 0	Score
Has a mastery of techniques and skills used by biochemists	Student has acquired a mastery of techniques and skills used by biochemists.	Student has acquired a substantial level of technical competence.	Student has acquired a passable level of technical competence.	Student has demonstrated little technical competence.	Not enough information to judge	