

Department of Microbiology – Topic and General Exam Rubric

Criteria	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Organization and effectiveness of written proposal	<ul style="list-style-type: none"> ▪ Writing is exceptionally clear and ideas are innovative ▪ Hypotheses, alternative approaches, and impact are explicitly described 	<ul style="list-style-type: none"> ▪ Proposal is clear, with minimal mechanical errors ▪ Proposal contains all relevant information 	<ul style="list-style-type: none"> ▪ Proposal contains abundance of errors such that meaning is obscured ▪ One or more sections are missing
Organization and effectiveness of presentation	<ul style="list-style-type: none"> ▪ Mature scientific language ▪ Engaging presentation 	<ul style="list-style-type: none"> ▪ Presentation is clear ▪ Relevant information is included 	<ul style="list-style-type: none"> ▪ Presentation is hard to follow ▪ Relevant details are missing and/or irrelevant details are distracting
Definition and significance of the central biological question	<ul style="list-style-type: none"> ▪ Exhibits independence and depth of thought ▪ Synthesizes discrete data into a coherent model/hypothesis 	<ul style="list-style-type: none"> ▪ Cites directly relevant experiments/papers ▪ Understands foundational experiments and scientific impact ▪ Critically evaluates gaps in the field 	<ul style="list-style-type: none"> ▪ Not a logical extension of prior work or is incremental/already done ▪ Lack of understanding of foundational experiments and/or scientific impact ▪ Premise of the proposal is weak due to lack of critical thinking
Clarity of hypothesis statement and/or hypothesis-generating goals	<ul style="list-style-type: none"> ▪ Hypothesis shifts the thinking in the field and, if true, would establish a new paradigm ▪ Exceptionally novel hypothesis-generating approach ▪ Project could advance other fields beyond the specific discipline 	<ul style="list-style-type: none"> ▪ Hypothesis is logical, testable, and follows from previous observations ▪ Hypothesis-generating approach is feasible and will address the central biological question 	<ul style="list-style-type: none"> ▪ Hypothesis is not clearly testable or is a simple observation ▪ Hypothesis-generating approach fails to address the central biological question
Effectiveness of Aims in testing the hypothesis	<ul style="list-style-type: none"> ▪ Even negative data will be impactful ▪ Anticipated outcomes show exceptional vision ▪ Multidisciplinary methods are used to test hypothesis 	<ul style="list-style-type: none"> ▪ Logical progression of thought ▪ Well-controlled experimental approach ▪ Feasible ▪ Experiments distinguish between competing hypotheses 	<ul style="list-style-type: none"> ▪ Experiments are ambiguous ▪ Lack of proper controls ▪ Lack of feasibility
Consideration of pitfalls and alternative approaches	<ul style="list-style-type: none"> ▪ Fully-formed alternative approaches ▪ Detailed rationale for prioritization of experiments 	<ul style="list-style-type: none"> ▪ Technical challenges recognized and acknowledged ▪ Alternative approaches considered 	<ul style="list-style-type: none"> ▪ Has not considered alternative approaches ▪ Has not considered results beyond those consistent with the hypothesis
Technical knowledge proficiency	Can describe the strengths and weaknesses of the proposed techniques compared to others	Understands the underlying principles of all proposed experiments but may not know all the details of each protocol	Knows the name of the method but not underlying principles

Guidance for outcome based on number of “Does not meet expectations” categories:

Topic Exam: 0-2 = pass; 3-5 = conditional pass or re-examine; 6-7 = fail
 General Exam: 0-1 = pass; 2-3 = re-examine; 4+ = fail

The committee should take into account the balance of these categories between the written and oral components of the exam. The committee may also decide that exceeding expectations in one or more categories sufficiently offsets a failure to meet expectations elsewhere.