MCB GENERAL EXAM RUBRIC

To pass the General Exam, MCB expects students will meet expectations in all areas;

or, minor deficiencies in one or more areas are offset by exceeding expectations in other areas;

or, minor deficiencies do not require reexamination because the committee sees clear remedies that can be addressed in future annual committee meetings.

Please apply this rubric to both the written and oral portions of the examination.

Exam Criteria	Does Not Meet Expectations	Meets Expectations	Exceeds Expectations
Central biological question clearly defined and significance conveyed	-Lack of understanding of basic foundational experiments -Lack of understanding of scientific impact	-Cites directly relevant experiments/papers -Clear understanding of scientific impact	-In-depth historical knowledge of field -Awareness of key labs that contribute to system -Proposal has potential to transform field
Hypotheses stated clearly or for discovery-based work, goals clearly defined	-Not a logical extension of prior work -Hypothesis is not clearly testable -Hypothesis is simply an observation -Goals of screen or advantage/need for technology to provide biological insight missing	-Hypothesis is logical -Hypothesis follows from previous observations -Hypothesis is testable -For screen, states why screen is needed -Articulates how screen/technology will provide new depth/breadth of knowledge	-Hypothesis shifts the thinking in the field and if true, would establish a new paradigm -Project could advance other fields beyond the specific discipline of the lab
Aims will effectively test the hypothesis	-Experiments are equivocal -Lack of proper controls -Lack of feasibility	-Well-controlled experimental approach -Feasible -Experimental design could produce data that supports or refutes the hypothesis -Experiments distinguish between competing hypotheses -Anticipated outcomes consistent with hypothesis and current state of the field	-Even negative data will be impactful -Anticipated outcomes show exceptional vision -Multidisciplinary methods are used to test hypothesis
Pitfalls and alternatives were considered	-Has not considered alternative approaches -Has not considered results beyond expected results	-Technical challenges recognized and acknowledged -Alternative approaches considered -Is aware of alternative outcomes	-Fully formed alternative approaches -Detailed rationale for prioritization of experiments -Detailed description of the breadth of possible outcomes -Suggests how outcomes would be followed up -Able to relate experiments to those in close fields
Technical knowledge proficiency	-Knows name of method but not underlying principles	-Fully describes all methods in proposal and underlying basic principles	-Knows history of the development of methods used and can explain their strengths and weaknesses
Exhibited independence and depth of thought	-Student repeats the prevailing ideas in the lab or field without critically evaluating them	-Student clearly explains the relationship between their project and the prior and ongoing work in the lab -Student articulates their input into the design of the project	-Brings a new system, hypothesis, technology or method to lab -Adapts existing methods to new uses