ASSESSMENT CRITERIA

***Skill 1*. Describe and explain biological concepts, theories, structures, and processes.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Summarize biological concepts, theories, structures, and processes.
- Compare biological concepts, theories, structures, and processes.
- Apply biological concepts and theories to new situations.
- Explain the relationships between different parts of a complex structure or process.

***Skill 2*. Develop and use biological models.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Construct and interpret diagrams, flow charts, equations, and other representations.
- Explain the relationships between different parts represented within a model.
- Refine a model to better represent a concept or data set.
- Compare different models representing similar concepts.
- Evaluate the benefits and shortcomings of a model.

***Skill 3*. Design experiments and conduct research using appropriate laboratory techniques and equipment.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Pose informed, testable questions.
- Write hypotheses that specify cause and effect.
- Plan and conduct scientifically valid experiments that produce numerical (quantitative) data.
- Justify experimental decisions.
- Use appropriate terminology to describe variables and groups.
- Use appropriate laboratory techniques, equipment, and safety protocols.
- Evaluate the potential for experimental errors.

ASSESSMENT CRITERIA

***Skill 4*. Graph and analyze data to determine meaningful patterns.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Construct appropriate tables and graphs.
- Describe the relationship between variables.

***Skill 5*. Apply mathematics and statistics to solve biology problems.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Calculate means and percentages.
- Solve problems using formulas and equations.
- Estimate whether a calculated answer is reasonable.
- Explain how mathematical representations relate to biological models or theories.

***Skill 6*. Use evidence to support or refute biological claims.**

Insufficient Evidence | **Basic** | **Intermediate** | **Advanced**

- Make biological claims based on evidence.
- Explain how evidence supports or contradicts a claim.
- Describe the appropriate data comparison needed to reach a valid conclusion.
- Predict the causes and effects of a change in a cell, organism, or ecosystem.

How to assess mastery level of these skills

Insufficient Evidence	**Basic**	**Intermediate**	**Advanced**
Need more evidence of proficiency in the skill.	*Work achieves some advanced criteria with major errors or achieves all criteria with significant assistance.*	*Work mostly achieves advanced criteria, but with some conceptual or procedural errors.*	*Work fully and consistently meets all criteria in this column.*

WORK HABIT SELF-ASSESSMENT RUBRIC

Skill 7. **Communicate and collaborate with members of a laboratory team.**	
• Not share ideas or solutions.	• Share new ideas and possible solutions.
• Not acknowledge peer contributions.	• Listen and respond to peer contributions.
• Not provide feedback on peer work.	• Share positive feedback on and suggestions for refining peer work.
• Not consider feelings of others.	• Ensure that all members of the group feel listened to, supported, and appreciated.

Skill 8. **Use course resources to self-direct learning and assess areas for improvement and for celebration.**	
• Regularly miss class, arrive late, or spent time on phone or with hall pass.	• Regularly attend class on time and spend most of class focused.
• Not complete assigned work.	• Complete all assigned work on time.
• Wait for others to point out areas for improvement and for celebration.	• Self-assess areas for improvement and for celebration.
• Not practice with concepts or skills outside of class.	• Regularly practice explaining concepts and applying skills outside of class.
• Not seek feedback nor learn from mistakes.	• Seek opportunities for feedback from peers and instructor, and learn from mistakes.