

**Content Preparation Update Worksheet  
Biology**

**Applicant Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

At the time of your admission into the program, you were asked to complete an “Admission Transcript Review Worksheet”, to help evaluate the extent to which your content preparation fulfilled both New York State certification requirements and relevant professional organization standards and, when needed, to let you know what additional coursework and/or other experiences would need to be completed by graduation. As you are now at the end of your program, we would like you to use this “Update” worksheet to document that you have completed all the additional experiences agreed upon at the time of admissions (if any), and also to identify other learning opportunities you had throughout your program to deepen your proficiency in specific content preparation standards. This will give the reviewer a complete picture of your content preparation at completion of your teacher preparation program.

**(A) Relevant Subject Matter Coursework since Admission Review**

In the table below, please report the required information for ALL the relevant subject matter coursework that you have completed and/or taken since your admission review, if any (this should include courses M.A.T. students have taken in The College):

Notes	Course Number	Course Title	Credit Hours	Grade	Sem. taken	Institution where the course was taken

**Current cumulative total # credit hours in science:** \_\_\_\_\_

**Current cumulative total # credit hours in biology:** \_\_\_\_\_

(Include in this total relevant credits taken prior to matriculation in the program, as well as those listed in the table above)

**(B) Professional Organization Recommendations**

In the table below, please indicate relevant experiences that occurred after your admission into the teacher preparation and contributed to your learning with respect to each of the content preparation standards identified by the National Science Teachers Association (NSTA) -- including opportunities you had in the context of courses taken as part of your teacher preparation program:

<b>Competency requirements – unifying concepts</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
1. Multiple ways we organize our perceptions of the world and how systems organize the studies and knowledge of science		
2. Nature of scientific evidence and the use of models for explanation.		
3. Measurement as a way of knowing and organizing observations of constancy and change.		
4. Evolution of natural systems and factors that result in evolution of equilibrium.		
5. Interrelationships of form, function, and behaviors in living and nonliving systems.		

<b>Competency requirements – Biology core competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
1. Life processes in living systems including organization of matter and energy.		
2. Similarities and differences among animals, plants, fungi, microorganisms, and viruses.		
3. Principles and practices of biological classification.		
4. Scientific theory and principles of biological evolution.		
5. Ecological systems including the interrelationships and dependency of organisms with each others and their environments.		
6. Population dynamics and the impact of population on its environment.		

Competency requirements – Biology core competencies	Relevant coursework or other experiences:	Comments
7. General concepts of genetics and heredity.		
8. Organization and functions of cells and multi-cellular systems.		
9. Behavior of organisms and their relationships to social systems.		
10. Regulation of biological systems including homeostatic mechanisms.		
11. Fundamental processes of modeling and investigating in the biological sciences.		
12. Applications of biology in environmental quality and in personal and community health.		

<b>Competency requirements – Biology advanced competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
13. Bioenergetics including major biochemical pathways.		
14. Biochemical interactions of organisms with their environments.		
15. Molecular genetics and heredity and mechanisms for genetic modification.		
16. Molecular basis for evolutionary theory and classification.		
17. Causes, characteristics and avoidance of viral, bacterial, and parasitic diseases.		

<b>Competency requirements – Biology core competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
18. Issues related to living systems such as genetic modification, uses of biotechnology, cloning, and pollution from farming.		
19. Historical development and perspectives in biology including contributions of significant figures and underrepresented groups, and the evolution of theories in biology.		
20. How to design, conduct, and report research in biology.		
21. Applications of biology and biotechnology in society, business, industry, and health fields.		

<b>Competency requirements – Biology supporting competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
22. Chemistry, including general chemistry and biochemistry with basic laboratory techniques.		
23. Physics, including light, sound, optics, electricity, energy and order, magnetism and thermodynamics.		
24. Earth and space sciences including energy and geo-chemical cycles, climate, weather, natural resources, and changes in the Earth.		
25. Mathematics, including probability and statistics.		