

## Content Preparation Update Worksheet Physics

**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 physics:** \_\_\_\_\_

(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 – Physics core competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
1. Energy, work and power.		
2. motion, major forces, and momentum.		
3. Newtonian principles and laws including engineering applications.		
4. Conservation of mass, momentum, energy and charge.		
5. Physical properties of matter.		
6. Kinetic-molecular motion and atomic models.		

Competency requirements – Physics core competencies	Relevant coursework or other experiences:	Comments
7. Radioactivity, nuclear reactors, fission, and fusion.		
8. Wave theory, sound, light, the electromagnetic spectrum, and optics.		
9. Electricity and magnetism.		
10. Fundamental processes of investigating in physics.		
11. Applications of physics in environmental quality and to personal and community health.		

<b>Competency requirements – Physics advanced competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
12. Thermodynamics and relationships between energy and matter.		
13. Nuclear physics including matter-energy duality and reactivity.		
14. Angular rotation and momentum, centripetal forces, and vector analysis.		
15. Quantum Mechanics, space-time relationships, and special relativity.		
16. Models of nuclear and subatomic structures and behavior.		
17. Light behavior, including wave-particle duality and models.		

<b>Competency requirements – Physics advanced competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
18. Electrical phenomena, including electric fields, vector analysis, energy, potential, capacitance, and inductance.		
19. Issues related to physics such as disposal of nuclear waste, light pollution, shielding communication systems, and weapon development.		
20. Historical development and cosmological perspectives in physics, including contributions of significant figures and underrepresented groups, and evolution of theories in physics.		
21. How to design, conduct, and report research in physics.		
22. Applications of physics and engineering in society, business, industry, and health fields.		

<b>Competency requirements – Physics supporting competencies</b>	<b>Relevant coursework or other experiences:</b>	<b>Comments</b>
23. Biology, including organization of matter and energy, electrochemistry, thermodynamics, and bonding.		
24. Chemistry, including organization of matter and energy, electrochemistry, thermodynamics, and bonding.		
25. Earth sciences or astronomy related to structure of the universe, energy, and interactions of matter.		
26. Mathematical and statistical concepts and skills including statistics and the use of differential equations and calculus.		