

Content Preparation Update Worksheet Chemistry

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 chemistry: _____

(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:

Competency requirements – unifying concepts	Relevant coursework or other experiences:	Comments
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.		

Competency requirements – Chemistry core competencies	Relevant coursework or other experiences:	Comments
1. Fundamental structures of atoms and molecules.		
2. Basic principles of ionic, covalent and metallic bonding.		
3. Physical and chemical properties and classification elements including periodicity.		
4. Chemical kinetics and thermodynamics.		
5. Principles of electrochemistry.		
6. Mole concept, stoichiometry, and laws of composition.		
7. Transition elements and coordination compounds.		

Competency requirements – Chemistry core competencies	Relevant coursework or other experiences:	Comments
8. Acids and bases, oxidation-reduction chemistry, and solutions.		
9. Fundamental biochemistry.		
10. Functional and polyfunctional group chemistry.		
11. Environmental and atmospheric chemistry.		
12. Fundamental processes of investigating in chemistry.		
13. Applications of chemistry in personal and community health and environmental quality.		

Competency requirements – Chemistry advanced competencies	Relevant coursework or other experiences:	Comments
14. Molecular orbital theory, aromaticity, metallic and ionic structures, and correlation to properties of matter.		
15. Superconductors and principles of metallurgy.		
16. Advanced concepts of chemical kinetics, and thermodynamics.		
17. Lewis adducts and coordination compounds.		
18. Solutions, colloids, and colligative properties.		
19. Major biological compounds and natural products.		
20. Solvent system concepts including non-aqueous solvents.		

Competency requirements – Chemistry advanced competencies	Relevant coursework or other experiences:	Comments
21. Chemical reactivity and molecular structure including electronic and steric effects.		
22. Organic synthesis and organic reaction mechanisms.		
23. Energy flow through chemical systems.		
24. Issues related to chemistry including ground water pollution, disposal of plastic, and development of alternative fluids.		
25. Historical development of perspectives in chemistry including contributions of significant figures and underrepresented groups, and the evolution of theories in chemistry.		
26. How to design, conduct and report research in chemistry.		
27. Applications of chemistry and chemical technology in society, business, industry, and health fields.		

Competency requirements – Chemistry supporting competencies	Relevant coursework or other experiences:	Comments
28. Biology, including molecular biology, biogenetics, and ecology.		
29. Earth science, including geochemistry, cycles of matter, and energetics of Earth systems.		
30. Physics, including energy, stellar evolution, properties and functions of waves, electricity and magnetism.		
31. Mathematics and statistical concepts and skills including statistics and the use of differential equations and calculus.		