Chemistry for Grades 7-12 (Ed 612.26)
Program Approval Rating Matrix for REVIEWER

Institution Name: _____ Date of Visit: _____

Ed 612.26 Chemistry For Grades 7-12

Directions to the Reviewer: At the end of the visit, you will be asked to rate each standard in your content area using this Rating Matrix and the Program Approval Recommendation Form to recommend a level of approval for the program. Please follow the instructions at the top of columns 2, 3, and 4. The Rubric for determining the rating required in Column 2 for each standard is as follows:

ON STANDARD	APPROACHING STANDARD	STANDARD NOT MET
Candidates' opportunities address **all** of the competencies specified for the individual certification areas	Candidates' opportunities address **most** of the competencies specified for the individual certification areas	Candidates' opportunities address **some or none** of the competencies specified for the individual certification areas

Ed 612.26 Chemistry For Grades 7-12	**RATING** **ON STANDARD** **or** **APPROACHING STANDARD** **or** **STANDARD NOT MET**	**RATIONALE** **[Required]** **Describe the reviewed evidence that lead to this rating**	**RECOMMENDATION** **[Required if rating is below 'on standard']** **SUGGESTION** **[Optional for 'on standard' or 'approaching standard']** **COMMENDATION** **[Optional]**
(a) A teacher preparation program in chemistry for grades 7-12 shall meet the science program general requirements of Ed 507.29(c).			
(b) A teacher preparation program in chemistry for grades 7-12 shall meet the physical science program requirements of Ed 507.51(c).			
(c) The chemistry program for grades 7-12 shall provide the teaching candidate with the skills, competencies and knowledge gained through a combination of academic and supervised practical experience in the following areas:			
(1) In the area of fundamental content knowledge, the candidate shall have the ability to:			

Ed 612.26 Chemistry For Grades 7-12	**RATING** **ON STANDARD** **or** **APPROACHING STANDARD** **or** **STANDARD NOT MET**	**RATIONALE** **[Required]** **Describe the reviewed evidence that lead to this rating**	**RECOMMENDATION** **[Required if rating is below 'on standard']** **SUGGESTION** **[Optional for 'on standard' or 'approaching standard']** **COMMENDATION** **[Optional]**
a. Explain concepts, solve problems, and perform laboratory techniques that explore and develop an understanding and application of the following fundamental areas of chemistry: 1. Structure and properties of matter, including, but not limited to: (i) Bonding and intermolecular forces; (ii) Relationship between molecular structure and the function of designed materials; (iii) Chemical engineering; (iv) Coordination complexes; (v) Molecular orbital theory; (vi) Organic chemistry and functional groups in biochemistry, biological compounds and natural products; and (vii) Gas laws;			
2. Chemical reactions and energy, including, but not limited to: (i) Reaction thermodynamics including exothermic and endothermic reactions, entropy, and Gibbs free energy;			

Ed 612.26 Chemistry For Grades 7-12	**RATING** **ON STANDARD** **or** **APPROACHING STANDARD** **or** **STANDARD NOT MET**	**RATIONALE** **[Required]** **Describe the reviewed evidence that lead to this rating**	**RECOMMENDATION** **[Required if rating is below 'on standard']** **SUGGESTION** **[Optional for 'on standard' or 'approaching standard']** **COMMENDATION** **[Optional]**
(ii) Product prediction in chemical reactions, based on patterns of chemical properties; (iii) Complex reaction dynamics, including kinetics and equilibrium; (iv) Mathematics of reactions, including mole concept, stoichiometry, and laws of composition and conservation, and aqueous equilibria from acid/base systems to solubility; (v) Application of electrochemistry and oxidation/reduction (REDOX) reactions; (vi) Energy in chemical processes; (vii) Wave-particle duality of nature, including the relationship between frequency, wavelength, and speed; and (viii) Changes in matter due to the absorption of electromagnetic radiation;			

Ed 612.26 Chemistry For Grades 7-12	**RATING** **ON STANDARD** **or** **APPROACHING STANDARD** **or** **STANDARD NOT MET**	**RATIONALE** **[Required]** **Describe the reviewed evidence that lead to this rating**	**RECOMMENDATION** **[Required if rating is below 'on standard']** **SUGGESTION** **[Optional for 'on standard' or 'approaching standard']** **COMMENDATION** **[Optional]**
3. Nuclear and environmental processes, including, but not limited to: (i) Environmental and atmospheric chemistry, including ground water pollution, plastics, and disposal of fuels; and (ii) Applications of chemistry in community health and environmental quality; and			
4. Engineering design processes, including, but not limited to: (i) Analyze a major global challenge to specify qualitative and quantitative criteria and constraints to solutions; (ii) Design a solution to a complex real-world problem accounting for constraints, cost, safety, reliability, and social, cultural, and environmental impacts; and (iii) Use a computer simulation to model the impact of proposed solutions to a complex real-world problem;			

Ed 612.26 Chemistry For Grades 7-12	**RATING** **ON STANDARD** **or** **APPROACHING STANDARD** **or** **STANDARD NOT MET**	**RATIONALE** **[Required]** **Describe the reviewed evidence that lead to this rating**	**RECOMMENDATION** **[Required if rating is below 'on standard']** **SUGGESTION** **[Optional for 'on standard' or 'approaching standard']** **COMMENDATION** **[Optional]**
b. Apply knowledge of chemistry and physical science concepts through full and partial inquiries, laboratory investigations, and the use of scientific models; and			
c. Understand and be able to apply mathematical concepts and techniques including, but not limited to, modeling and variable analysis at least through the level of college calculus and statistics.			

Reviewer's Recommended Rating for Chemistry 7-12 Program Approval based on a review of both Ed 610.02 Professional Education and Ed 612.26:

REVIEWER INFORMATION:

PRINT NAME:_____

SIGNATURE: _____ **DATE:** _____