University of Maryland University College (UMUC)
Department of Education

Conceptual Framework (CF) Alignment: UMUC's professional education unit instills in all candidates the belief that all students can learn and learn at high levels, and that they as teachers and teacher candidates are instrumental in ensuring that this learning occurs. This transcript review form is used for MAT admissions in conjunction with Key Assessments 2 – Description of transcript analysis process, which aligns with CF Learning Objective 1: Teaching for Learning – The candidate acts upon academic content, professional and pedagogical knowledge, and understanding of students to maximize student achievement. The use of this transcript review form also aligns with the Department's Professional Dispositions category 1: Relationship with students through curriculum and instruction.

MAT Transcript Review in Secondary Chemistry, 7-12 Grade Teacher Certification - NSTA Standards 2003

NSTA Assessment Standards for Certification	Typical Courses Aligned with Standards (Course Samples)	Courses Completed (Include Prefix, number, and Name)	# of Credits
Concepts in fundamental structures of atoms and molecules	• Atoms & Molecules • General Chemistry		
Concepts in basic principles of ionic, covalent and metallic bonding	• Inorganic Chemistry • Atoms		
Concepts in physical and chemical properties and classifications; periodicity	• Physical Chemistry • Theoretical foundations of Physical Chemistry		
Concepts in chemical kinetics, thermodynamics, electrochemistry	• Physical Chemical Thermodynamics • Electrochemistry		
Environmental and atmospheric chemistry	• Ecological Biochemistry • General Ecology		

Fundamental processes of investigating in chemistry	• Forensic Chemistry • Intro to Analytical Chemistry		
Applications of chemistry in personal and community health and environment.	• Environmental Chemistry • Chemistry of Dangerous Drugs		
Molecular orbital theory, aromaticity metallic and ionic structures, correlation to properties of matter	• Inorganic Chemistry • Organic Chemistry		
Superconductors and principles of metallurgy; advanced concepts of chemical kinetics and thermodynamics	• Principles of Physical Chemistry • Thermodynamics		
Major biological compounds and natural products	• Biochemistry • Molecular Biology		
Chemical reactivity and molecular structure; organic synthesis and organic reaction mechanisms	• Structural Determination using Spectroscopic Methods • Radiochemistry		
Energy flow through chemical systems; issues related to chemistry; ground water pollution, disposal of plastics, alternative fuels.	• Air Pollution • Chemical & Bacteriological Studies on Water Pollution		
Historical development and perspectives in chemistry	• Chemical Literature • Professional Issue in Chemistry & Biochemistry		
How to design, conduct and report research	• Chemical Research		

in chemistry	• Instrumental Analysis		
Applications of chemistry and chemical technology in society, business, industry and health fields	• Ethics in Science & Engineering • Chemical toxicology		
Concepts from biology, earth & space science, physics, and mathematics (relating to ecology, energetics of earth systems, magnetism, and equations)	• Geochemistry • Physics/ Calculus		
		Total Credits:	

Note:

Applicants may qualify to enter the MAT program with a content specialization in Chemistry if they have an undergraduate major in the certification area, or if they have completed 30 credit hours of coursework in Chemistry.

Secondary Chemistry, 7-12 Grade Teacher Certification
Full standards are available at NSTA: http://www.nsta.org/preservice/docs/NSTAstandards2003.pdf