



Program Learning Outcomes and Assessments

Mapped to Courses, Artifacts/Assignments and Standards of Performance

Chemistry Program

The program outcomes listed below are for students in the Masters of Science in Teaching Learning Chemistry program.

Program Learning Outcomes	Program Learning Outcomes	Courses	Standards of Performance Evidence: Minimum grade of 80 for each outcome; Overall GPA of 3.00 or above
1	Candidates will understand social constructivism and apply this concept in the classroom for the purpose of improved K12 student engagement.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Teaching Methods Social Constructivism Critical Thinking Assignment; Teaching Methods Differentiation Grading Critical Thinking Assignment; Teaching Methods Classroom Environment Critical Thinking Assignment; Field Experience Video 3
2	Candidates will understand formative and summative assessment and apply this concept in the classroom so that all students can demonstrate mastery of course content.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Teaching Methods Grading Short Answer, Formative Assessment Proctored Exam; Teaching Methods Data Driven Decision Making Proctored Exam; Field Experience Video 2

3	Candidates will understand how to deliver appropriate demonstrations, labs (virtual and physical), and apply that understanding in the classroom.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Teaching Methods; Differentiation Critical Thinking Assignment; Teaching Methods Pacing and Planning Critical Thinking Assignment; Teaching Methods Final Self Reflection; Field Experience video 3
4	Candidates will demonstrate an understanding of how to reflect on classroom practice and to improve professional practice, and apply that understanding in the classroom.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Teaching Methods Final Self-Reflection; Field Experience Final Self Reflection;
5	Candidates will demonstrate an understanding of how to integrate educational technology effectively to improve student learning in chemistry, and apply that understanding in the classroom.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Field Experience Final Tech Survey
6	Candidates will demonstrate an understanding of how to use research skills to analyze various teaching methods, and to apply that understanding in the classroom.	MET6621 - Teaching Methods; MET6104 - Field Experience II	Teaching Methods Data Driven Decision Making Proctored Exam; Teaching Methods Direct Instruction Proctored Exam; Metacognition and Problem-Solving Short Answer Assignment and Proctored Exam
7	Candidates will understand the periodic table and chemical bonding and apply that understanding to solving problems. As a result, they will be able to convey that understanding and the ability to solve problems to their students.	CHEM6741: Learning & Teaching Honors Chemistry: Periodic Table and Chemical Bonding	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
8	The student will demonstrate an understanding of molecules and reactions and apply that understanding to solve problems.	CHEM6742: Learning & Teaching Honors Chemistry: Molecules and Reactions	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
9	Candidates will understand thermal chemistry and Acids & Bases and apply that understanding to solving problems. As a result, they will be able to convey that understanding and the ability to solve problems to their students.	CHEM6743: Learning & Teaching Honors Chemistry: Thermal Chemistry and Acids & Bases	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%

10	Candidates will understand AP Chemistry including atomic structure and compounds and apply that understanding to solving problems. As a result, they will be able to convey that understanding and the ability to solve problems to their students.	CHEM6753: Learning & Teaching PSI AP Chemistry - Atomic Structure and Compounds	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
11	Candidates will understand AP chemistry including solutions and reaction. As a result, they will be able to convey that understanding to solve problems to their students.	CHEM6754: Learning & Teaching PSI AP Chemistry II - Solutions and Reactions	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
12	Candidates will understand AP Chemistry, including kinetics, equilibrium, acids & bases and buffers & titrations. As a result, they will be able to convey that understanding to solve problems to their students.	CHEM6755: Learning & Teaching AP Chemistry III: - Kinetics, Equilibrium, and Acids & Bases	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
13	Candidates will understand AP Chemistry including K _{sp} & solubility, thermodynamics, and electrochemistry. As a result, they will be able to convey that understanding to solve problems to their students.	CHEM6756: Learning & Teaching PSI AP Chemistry IV - Aqueous Equilibria, Thermodynamics & Electrochemistry	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%