



Program Learning Outcomes and Assessments

Mapped to Courses, Artifacts/Assignments and Standards of Performance

Physics Program

The program outcomes listed below are for students in the Masters of Science in Teaching Learning Physics 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 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 physics, 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 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 mechanics 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.	PHYS6641: Learning & Teaching Algebra-based Physics: Mechanics	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
8	Candidates will understand electricity and magnetism 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.	PHYS6642: Learning & Teaching Algebra-based Physics: Electricity & Magnetism	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
9	Candidates will understand modern physics including mechanics, electricity, magnetism and waves 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.	PHYS6643: Learning & Teaching Algebra-based Physics - Modern Physics	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%

10	Candidates will understand AP Physics including modern two-dimensional mechanics 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.	PHYS6653: Learning & Teaching AP Physics 1 - Mechanics	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
11	Candidates will understand vector analysis, kinematics in two dimensions, dynamics in two dimensions, Newtonian gravitation, rotational motion, conservation of energy and momentum, waves, electric force, and circuits. As a result, they will be able to convey that understanding to solve problems to their students.	PHYS6654: Learning & Teaching AP Physics 1 - Waves, Rotation, Electricity	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
12	Candidates will understand two-dimensional electric force and field, electric potential and capacitors, electric current, magnetism, electromagnetic induction, electromagnetic waves, geometric optics, fluids, thermal physics, and modern physics. As a result, they will be able to convey that understanding to solve problems to their students.	PHYS6657: Learning & Teaching AP Physics 2 - Electricity and Magnetism	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%
13	Candidates will understand mechanical waves, electromagnetic waves, geometric optics, quantum physics, atomic models, and nuclear physics. As a result, they will be able to convey that understanding to solve problems to their students.	PHYS6658: Learning & Teaching AP Physics 2 - Advanced Topics	Proctored Module Exams 70%; Final Exam 10%; Labs 6%; Short Answer Assignments 6%, Mastery Exercises 6% Reflection Paper 2%