PROGRAM ASSESSMENT PLAN

Departments of Biological Sciences, Chemistry, Geology, and Physics

Adolescence Education: Science 7-12

Bachelor of Science and Master of Arts in Teaching (ABI, ACM/ACH, AES, and APH)

NSTA Standard 1: Content Knowledge----Effective teachers of science understand and articulate the knowledge and practices of contemporary science. They interrelate and interpret important concepts, ideas, and applications in their fields of licensure.	
Student Learning Outcomes: Teacher candidates will:	
	#1: understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association.
	#2: understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.
	#3: show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching P-12 students.
NSTA Standard 2: Content Pedagogy----Effective teachers of science understand how students learn and develop scientific knowledge. Preservice teachers use scientific inquiry to develop this knowledge for all students.	
Student Learning Outcomes: Teacher candidates will:	
	#4: plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.
	#5: include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences.
	#6: include applications of science-specific technology in the lessons when appropriate.
	#7: design instruction and assessment strategies that confront and address naïve concepts/preconceptions.
NSTA Standard 3: Learning Environments Effective teachers of science are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned with state and national standards. The plans reflect the nature and social context of science, inquiry, and appropriate safety considerations. Candidates design and select learning activities, instructional settings, and resources--including science-specific technology, to achieve those goals; and they plan fair and equitable assessment strategies to evaluate if the learning goals are met.	
Student Learning Outcomes: Teacher candidates will:	
	#8: Use a variety of strategies that demonstrate the candidates' knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn.
	#9: Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences.
	#10: Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met.
	#11: Evaluate preconceptions and ideas that students hold and understandings they have formulated.
	#12: Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure area.
NSTA Standard 4: Safety----Effective teachers of science can, in a P-12 classroom setting, demonstrate and maintain chemical safety, safety procedures, and the ethical treatment of living organisms needed in the P-12 science classroom appropriate to their area of licensure**.**	
Student Learning Outcomes: Teacher candidates will:	
	#13: Design activities in a P-12 classroom that demonstrate the safe and proper techniques for the preparation, storage, dispensing,

	supervision, and disposal of all materials used within their subject area science instruction.
	#14: Design and demonstrate activities in a P-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines.
	#15: Ensure safe science activities appropriate for the abilities of all students.
	#16: Design and demonstrate activities in a P-12 classroom that demonstrate ethical decision-making with respect to the treatment of all living organisms in and out of the classroom.
	#17: Emphasize safe, humane, and ethical treatment of animals and comply with the legal restrictions on the collection, keeping, and use of living organisms.
NSTA Standard 5: Impact on Student Learning-----Effective teachers of science provide evidence to show that P-12 students' understanding of major science concepts, principles, theories, and laws have changed as a result of instruction by the candidate and that student knowledge is at a level of understanding beyond memorization. Candidates provide evidence for the diversity of students they teach.	
Student Learning Outcomes: Teacher candidates will:	
	#18 Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.
	#19 Provide data to show that P-12 students are able to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.
	#20 Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.
Standard 6: Professional Knowledge and Skills----Effective teachers of science strive continuously to improve their knowledge and understanding of the ever changing knowledge base of both content, and science pedagogy, including approaches for addressing inequities and inclusion for all students in science. They identify with and conduct themselves as part of the science education community.	
Student Learning Outcomes: Teacher candidates will:	
	#21 Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community.
	#22 Engage in professional development opportunities such as conferences, research opportunities, or projects within their community.