

Draft General Education Reporting Matrix

State-Level Goals SKILL AREAS	Institutional Competencies	Course(s) and Credit Hours	Non-Course Experiences	Associated Assessment(s)
Communicating				
To develop students' effective use of the English language and quantitative and other symbolic systems essential to their success in school and in the world. Students should be able to read and listen critically and to write and speak with thoughtfulness, clarity, coherence, and persuasiveness.	A. analyze and evaluate their own and others' speaking and writing	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	B. conceive of writing as a recursive process that involves many strategies, including generating material, evaluating sources when used, drafting, revising, and editing	Phy 223: 4 credits		Students must write formal lab reports and give essay answers on both homework and on exams.
	C. make formal written and oral presentations employing correct diction, syntax, usage, grammar, and mechanics	Phy 223: 4 credits		Students must write formal lab reports.
	D. focus on a purpose (e.g., explaining, problem solving, argument) and vary approaches to writing and speaking based on that purpose	Phy 223: 4 credits		Students must write formal lab reports.
	E. respond to the needs of different venues and audiences and choose words for appropriateness and effect	Phy 223: 4 credits		Students must write formal lab reports.
	F. communicate effectively in groups by listening, reflecting, and responding appropriately and in context	Phy 223: 4 credits		Students participate in classroom discussions.
	G. use mathematical, statistical models, standard quantitative symbols, and various graphical tactics to present information with clarity, accuracy, and precision	Phy 223: 4 credits		Students must use mathematics in both homework and laboratory situations.

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Higher-Order Thinking				
To develop students' ability to distinguish among opinions, facts, and inferences; to identify underlying or implicit assumptions; to make informed judgments; and to solve problems by applying evaluative standards.	A. recognize the problematic elements of presentations of information and argument and to formulate diagnostic questions for resolving issues and solving problems	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	B. use linguistic, mathematical or other symbolic approaches to describe problems, identify alternative solutions, and make reasoned choices among those solutions	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	C. analyze and synthesize information from a variety of sources and apply the results to resolving complex situations and problems	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	D. defend conclusions using relevant evidence and reasoned argument	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	E. reflect on and evaluate their critical-thinking processes	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
Managing Information				
To develop students' abilities to locate, organize, store, retrieve, evaluate, synthesize, and annotate information from print, electronic, and other sources in preparation for solving problems and making informed decisions.	A. access and/or generate information from a variety of sources, including the most contemporary technological information services	Phy 223: 4 credits		Students must find the latest values for certain quantities in order to solve homework problems.
	B. evaluate information for its currency, usefulness, truthfulness, and accuracy	Phy 223: 4 credits		Students critique various articles and letters to the editor with a view of the science content.
	C. organize, store, and retrieve information efficiently	Phy 223: 4 credits		Students must write formal lab reports.
	D. reorganize information for an intended purpose, such as research projects	Phy 223: 4 credits		Students must write formal lab reports.
	E. present information clearly and concisely, using traditional and contemporary technologies	Phy 223: 4 credits		Students must write formal lab reports.

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Valuing				
To develop students' abilities to understand the moral and ethical values of a diverse society and to understand that many courses of action are guided by value judgments about the way things ought to be. Students should be able to make informed decisions through identifying personal values and the values of others and through understanding how such values develop. They should be able to analyze the ethical implications of choices made on the basis of these values.	A. compare and contrast historical and cultural ethical perspectives and belief systems			
	B. utilize cultural, behavioral, and historical knowledge to clarify and articulate a personal value system			
	C. recognize the ramifications of one's value decisions on self and others			
	D. recognize conflicts within and between value systems and recognize and analyze ethical issues as they arise in a variety of contexts			
	E. consider multiple perspectives, recognize biases, deal with ambiguity, and take a reasonable position	Phy 223: 4 credits		Students are presented with ambiguous data and told there are several possible conclusions that can be drawn. They must take a position and explain why.

State-Level Goals KNOWLEDGE AREAS	Institutional Competencies	Course(s)	Non-Course Experiences	Associated Assessment(s)
Social & Behavior Sciences				
To develop students' understanding of themselves and the world around them through study of content and the processes used by historians and social and behavioral scientists to discover, describe, explain, and predict human behavior and social systems. Students must understand the diversities and complexities of the cultural and social world, past and present, and come to an informed sense of self and others. (Students must fulfill the state statute requirements for the United States and Missouri constitutions.)	A. explain social institutions, structures, and processes across a range of historical periods and cultures			
	B. develop and communicate hypothetical explanations for individual human behavior within the large-scale historical and social context			
	C. draw on history and the social sciences to evaluate contemporary problems	Phy 223: 4 credits		Global warming and the different cultural perspectives are discussed.
	D. describe and analytically compare social, cultural, and historical settings and processes other than one's own			
	E. articulate the interconnectedness of people and places around the globe	Phy 223: 4 credits		Science can be socially driven and the students discuss several examples.
	F. describe and explain the constitutions of the United States and Missouri			
Humanities & Fine Arts				
To develop students' understanding of the ways in which humans have addressed their condition through imaginative work in the humanities and fine arts; to deepen their understanding of how that imaginative process is informed and limited by social, cultural, linguistic, and historical circumstances; and to appreciate the world of the creative imagination as a form of knowledge.	A. describe the scope and variety of works in the humanities and fine arts (e.g., fine and performing arts, literature, and speculative thought)	Phy 223: 4 credits		Discussions are held on the connections between the developments of fine arts and physical theories.
	B. explain the historical, cultural, and social contexts of the humanities and fine arts			
	C. identify the aesthetic standards used to make critical judgments in various artistic fields			
	D. develop a plausible understanding of the differences and relationships between formal and popular culture			
	E. articulate a response based upon aesthetic standards to observance of works in the humanities and fine arts			

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Mathematics				
To develop students' understanding of fundamental mathematical concepts and their applications. Students should develop a level of quantitative literacy that would enable them to make decisions and solve problems and which could serve as a basis for continued learning. (The mathematics requirement for general education should have the same prerequisite(s) and level of rigor as college algebra.)	A. describe contributions to society from the discipline of mathematics	Phy 223: 4 credits		Students must explain how math has contributed to advancing technology.
	B. recognize and use connections within mathematics and between mathematics and other disciplines	Phy 223: 4 credits		Various fields of mathematics are used in solving homework problems.
	C. read, interpret, analyze, and synthesize quantitative data (e.g., graphs, tables, statistics, and survey data) and make reasoned estimates	Phy 223: 4 credits		Graphs and tables are utilized in the writing of lab reports.
	D. formulate and use generalizations based upon pattern recognition			
	E. apply and use mathematical models (e.g., algebraic, geometric, statistical) to solve problems	Phy 223: 4 credits		Various fields of mathematics are used in solving homework problems.
Life & Physical Sciences				
To develop students' understanding of the principles and laboratory procedures of life and physical sciences and to cultivate their abilities to apply the empirical methods of scientific inquiry. Students should understand how scientific discovery changes theoretical views of the world, informs our imaginations, and shapes human history. Students should also understand that science is shaped by historical and social contexts.	A. explain how to use the scientific method and how to develop and test hypotheses in order to draw defensible conclusions	Phy 223: 4 credits		Students must utilize this skill to write lab reports.
	B. evaluate scientific evidence and argument	Phy 223: 4 credits		Students express their competency in homework assignments, labs, & exams.
	C. describe the basic principles of the physical universe	Phy 223: 4 credits		Students express their competency in homework assignments, labs, & exams.
	D. describe concepts of the nature, organization, and evolution of living systems			
	E. explain how human choices affect the earth and living systems			