Academic Program Goals and Learning Outcomes

[Revised March 2021]

I. Academic Program Goals

The VMI Academic Program develops graduates who possess

- an understanding of the responsibilities of American citizenship, including the obligation to defend the principles of democracy on which the United States is founded [Citizenship (CIT)];

- the ability to influence human behavior to accomplish organizational goals, recognizing moral issues and applying ethical considerations in decision making [Leadership and Human Relationships (LHR)];

- the ability to communicate effectively, both orally and in writing [Communication (COM)];

- the ability to conduct scientific experiments, analyze and interpret data, and understand the fundamental principles in science [Scientific Inquiry (SCI)];

- the ability to understand and apply mathematical sciences to solve quantitative problems [Mathematical Inquiry (MAI)];

- a knowledge of history and culture and an appreciation of how they may be used to understand human behavior, achievement, and ideas in a global context [History and Culture (HIC)];

- the ability to process information for strategic or creative purposes to include evaluative, anticipatory, logical, conceptual, or divergent thinking which results in effective solutions to problems [Critical and Creative Thinking (CCT)];

- the confidence to use technology and experiment with technological solutions to problems [Technological Competence (TEC)];

- intellectual curiosity and a commitment to lifelong learning [Lifelong Learning (LLL)];

- a commitment to physical fitness and wellness [Health and Wellness (HWL)]; and

- a commitment to public service [Public Service (PSV)].

II. Learning Outcomes

The following learning outcomes are addressed through a combination of core curriculum and major program requirements.

Citizenship (CIT)

combination: vision, ability, enthusiasm, emotional stability, concern for others, selfconfidence, persistence, vitality, charisma, and integrity (Manning & Curtis). Those in leadership positions are entrusted with power; the mere possession of any kind of power leads, inevitably, to ethical questions about how that power should and should not be used. Since leaders can use power for good or U o Œ [• personal code of ethics and values may be the most important determinants of how power is exercised or constrained (Hughes, Ginnett, & Curphy). Ethics are the standards of right and wrong that influence behavior (Lussier & Achua); however, ethics go beyond the legal requirements. Therefore, leaders must set a moral example to others that becomes the model for the entire group or organization.

Leadership is a process, not a position, and leadership can be developed both through formal education and practical experience. VMI attempts to inculcate these attributes and values in all of its graduates through instruction and opportunities to lead.

Learning Outcomes:

The Academic Program prepares graduates who can

1. Demonstrate a basic knowledge of the leading academic theories and research related to leadership.
2. Develop greater self-awareness of personal leadership strengths and weaknesses.

Communication (COM)

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Mathematical Inquiry (MAI)

Mathematics is deeply embedded in everyday life; it is also the language of science and forms a crucial part of the body of knowledge necessary for a scientifically o]š Œ š •}] šÇX sD/ u Œ • šZ D šZ u š] • ••}] š]}v }(•šµ vš• uµ•š o Œv ^š} }v(Œ}všU Æ‰o}Œ U v }uuµv] š u} Œv u šZ u š] • v šZ µ• • }(u šZ u š] •]v •}] šÇX_ K addresses this goal by requiring high-quality introductory mathematics courses, with quantitative problem-Œ] Z Æ‰ Œ] v •U šZ š š]À oÇ vP P šZ •š imagination and creativity. Because VMI regards the mathematical sciences, like scientific inquiry, as a cornerstone for the intellectual development of critical thinking and analytical skills, we require that all entering freshmen, regardless of major, take two semesters of mathematics. Consistent with the objectives of the National Council of Teachers of Mathematics, we ensure that these courses provide meaningful and appropriate foundations for problem-solving in advanced courses in other disciplines.

Learning Outcomes:

The Academic Program prepares graduates who can

1. Connect ideas of modern mathematics to applications in real-world settings.
2. Understand the relationship between variables and parameters of mathematical models and the patterns or phenomena they represent.
3. Formulate a problem using appropriate mathematical techniques and expressions.
4. Apply mathematical techniques to solve quantitative problems.
5. Communicate a solution in a manner that clearly indicates the line of reasoning.

History and Culture (HIC)

Cultural understanding is essential for VMI graduates to function effectively in the world of the 21st century (Nussbaum; Stearns). Students must study history, languages, and culture in order to relate their own national identity to that of other µošµŒ • v Po} o }v Œv• P v Œ ooÇV šZ Ç uµ•š ^µv Œ• order to understand their [ow v • ‰o]v šZ ÁŒ}Œ_ ~

• ^]š]Ì v• }(šZ Á}Œo _ ~Eµ•• µu•U sD/ PŒ µ š • uµ•š µ American history and culture and basic patterns of development in other regions of the world. VMI graduates will encounter problems and challenges in their lives that are deeply rooted in patterns of world history, that are global in dimension, and that require global consciousness to solve them. To achieve the outcomes of this goal, students will take courses in the history, languages, and cultures of societies broadly defined (Education; Johnson, Shaman, & Zemsky; Narsee).