

VIRGINIA MILITARY INSTITUTE

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11 January 2024

MEMORANDUM TO THE VMI BOARD OF VISITORS THROUGH THE ACADEMIC AFFAIRS COMMITTEE

SUBJECT: Approval of Curricular Changes

Background

The Board of Visitors is charged with the responsibility of ensuring the academic quality and integrity of the Institute. The following changes to the Institute curriculum have been approved by the Academic Board and are submitted for the approval of the Board of Visitors:

- **Programmatic Changes:**

- Remove MA 106 as C.S. Information Technology Track Requirement

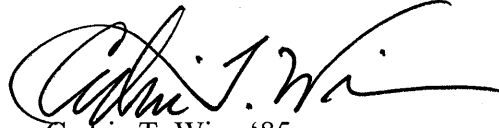
The Computer and Information Sciences Department proposes to remove MA 106 from the Information Technology Track requirements. It was unintentionally included as one of the “Required Additional Mathematics Courses” in the B.S. in Computer Science – Information Technology Track approved by the Board of Visitors on 29 April 2023.

- **New Courses – Enclosure (1):**

- BI 355 – Endocrinology (3-0-3)
- CE 415 – Environmental Engineering Unit Process Design (3-0-3)
- CE 439 – Transportation Infrastructure and Economics (3-0-3)
- CE 450 – Stormwater Management (3-0-3)
- CE 484 – Mechanics of Composite Materials (3-0-3)
- ERH 339 – Art of Medieval Europe (3-0-3)
- ERH 340 – Art of Renaissance Europe (3-0-3)
- HI 300 – United States Constitutional History (3-0-3)
- HI 344 – Conflict and Environment (3-0-3)
- HI 370 – Political Violence in the United States to 1877 (3-0-3)
- HI 371 – Climate and Human History (M) (3-0-3)
- HI 381 – Humanity’s War on Nature (3-0-3)

Recommended Motion

“The Academic Affairs Committee has considered the recommended Curricular Changes dated 11 January 2024. I move that the Board of Visitors approve these Curricular Changes and that they be made part of the minutes.”

A handwritten signature in black ink, appearing to read "Cedric T. Wins '85". The signature is fluid and cursive, with a large initial "C" and a long horizontal stroke at the end.

Cedric T. Wins '85
Major General, U.S. Army (Retired)
Superintendent

New Course Descriptions

BI 355 – Endocrinology (3-0-3)

Course Description: Endocrinology is the study of hormones and is concerned with the integration of brain, body, and behavior. The course will offer students an in depth understanding of the structure and function of the endocrine system. Students will be given an overview of human and comparative endocrinology by covering topics such as sex differences, reproduction, stress, and disease. Using in class discussions of clinical case studies, landmark historical research, current events, and demonstrations, students will delve into the field of endocrinology.

CE 415 – Environmental Engineering Unit Process Design (3-0-3)

Course Description: Design and analysis of biological, physical, and chemical processes for treatment of liquid and solid municipal and industrial wastes. Design and analysis of air pollution control technologies. Practical applications are emphasized. Prerequisite(s): CE 321.

CE 439 – Transportation Infrastructure and Economics (3-0-3)

Course Description: This course examines several modes of transportation (primarily water, air, and rail) and the cost associated with building and maintaining its infrastructure. Students will explore how the finances involved in the construction/maintenance process translate into everyday user cost /charges. Financial scenarios concerning different transportation infrastructure projects are reviewed, and students grow to develop solutions that improve the system functionally and economically.

CE 450 – Stormwater Management (3-0-3)

Course Description: This course will cover Impact of urbanization, evaluation of peak storm water discharge; design of stormwater drainage structures (gutters, drainage inlets, manhole, and detention ponds); stormwater quality; sedimentation and erosion; innovative and advanced stormwater management techniques (Green Infrastructures, blue and purple roofs, remote sensing, and GIS). Requires use of commercial software like REC-HMS and EPA SWMM.

CE 484 – Mechanics of Composite Materials (3-0-3)

Course Description: Introduction to the basic concepts of the mechanical behavior of composite materials. This course covers topics related to fiber reinforced composites focusing on the prediction of elastic properties and failure. Students will learn about the microstructure of fiber composites, how it influences material properties, and how the design of composite materials differs from isotropic materials like metals. Pre-requisite: CE 206 or equivalent.

ERH 339 – Art of Medieval Europe (3-0-3)

Course Description: This course focuses on the art of medieval Europe (roughly 800 -1400 CE) and how it relates to broader cultural trends of the era. Cadets will study artworks, architecture, and artists through analysis of primary source documents, scholarly articles, and the images themselves.

ERH 340 – Art of Renaissance Europe (3-0-3)

Course Description: This course covers visual art produced in Renaissance Europe from about 1400 to 1600 and its relationship to the broader cultural trends of the era. Cadets will study artworks, architecture, and artists from both north and south of the Alps through analysis of primary source documents, scholarly articles, and the images themselves.

HI 300 – United States Constitutional History (3-0-3)

Course Description: An intensive study of the origins and development of the United States Constitution, from its early-modern origins to the present. An emphasis is placed on reading and analyzing primary documents related to constitutional history, including but not limited to Supreme Court decisions. Thematic focuses will include the American founding, civil rights, and the obligations of citizen-soldiers, among others.

HI 344 – Conflict and Environment (3-0-3)

Course Description: This course explores how nature, or the natural world, has shaped conflicts and how conflicts have shaped the natural world from the early modern period to the present. This course uses a comparative approach to explore the interconnected relationship between humans, conflict, and the environment within the Atlantic World. Conflict will be examined from a broad perspective, which can include war and rebellion, but also social conflicts. Key topics include ecological imperialism, colonization, the General Crisis, the Global Crisis, the Little Ice Age, the Age of Revolutions, the U.S. Civil War, Coal Wars, World War II, and the Atomic Age. Region: U.S. OR Europe or Asia/Africa/Latin America, but only one.

HI 370 – Political Violence in the United States to 1877 (3-0-3)

Course Description: This survey course examines the causes and consequences of political violence in U.S. history, as well as attempts to limit political violence. An emphasis is placed on the shifting role of political violence as American democracy developed and evolved. Region: U.S.

HI 371 – Climate and Human History (M) (3-0-3)

Course Description: This methodologically intensive course surveys the relationship between humans and climate over the last millennium with an emphasis on the Global Crisis of the seventeenth century. Cadets will examine how human-climate interactions influenced the cultural, political, social, economic, and environmental changes over time, and how this changed temporally and spatially. In addition to more traditional text-based sources, cadets will become familiar with "non-traditional" sources utilized by the humanities including experiential techniques from the natural sciences, like coring trees, reading pollen slides, or examining ice cores. Region: Europe OR Asia/ Africa/Latin America, but not both.

HI 381 – Humanity’s War on Nature (3-0-3)

Course Description: This survey course adopts a comparative perspective of how humans have interacted with and thought about their surroundings. It begins in the sixteenth century and ends with contemporary environmental challenges. Key topics include the evolution of agricultural and pastoral lifeways; famine and epidemics; the ecology of colonialism and industrial civilization; decolonization and environmentalism of the poor; the Great Acceleration, the Anthropocene, and climate change; and the dynamic relationship between nature and culture. Region: Europe OR Asia/ Africa/Latin America, but not both.