



# QUALITY ENHANCEMENT PLAN

THE CORE CURRICULUM:  
THE NUCLEUS OF  
EFFECTIVE CITIZENSHIP AND LEADERSHIP

VIRGINIA MILITARY INSTITUTE  
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# **QUALITY ENHANCEMENT PLAN**

**The Core Curriculum:  
The Nucleus of Effective Citizenship and Leadership**

**Virginia Military Institute  
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## **ABSTRACT**

Grounded in the Virginia Military Institute's (VMI's) long-standing mission to create citizen-soldiers, this Quality Enhancement Plan (QEP) will improve the Institute's core curriculum with the goal of providing each student with the nucleus of effective citizenship and leadership. This QEP is a central component of Vision 2039, VMI's far-reaching plan for improving its time-tested, hands-on environment for developing leaders.

To this end, the core curriculum has been revised to ensure that its components are informed by the attributes that VMI desires each of its graduates to possess. Furthermore, this new core curriculum, which is designed to complement the specialized study of a student's major, will extend across the full four years of a cadetship, in keeping with its central role in shaping VMI graduates. Using this framework, this QEP will guide the selection of core curriculum courses and will coordinate their implementation, assessment, and resource needs.

The development of this new core curriculum and the formulation of this QEP have provided an opportunity for the involvement of every interested member of the VMI community, and they have received (and will continue to receive) widespread discussion within academic departments and the Academic Board, as well as within the administration. As a result, this QEP reflects the thinking of the faculty and administration as a body, not as individual persons with special interests. It is, however, a flexible document that will be refined not only during the implementation of the new core curriculum, but also well into the future as the VMI community continues to strengthen its environment for producing citizen-soldiers.

## **1 PURPOSE AND GOALS**

The Virginia Military Institute (VMI) strives to cultivate, in each of its students, the essential characteristics of a citizen-soldier, a person of character who anticipates, responds, and leads in a complex and changing world. The heart of this endeavor will be VMI's new core curriculum, a mutually reinforcing set of courses and experiences that will teach students to anticipate, to respond, and to lead.

VMI will follow this QEP to develop, implement, maintain, and assess this new core curriculum; to ensure that necessary resources are in place for its implementation and assessment; and to monitor and evaluate these activities to support its success in meeting the desired learning outcomes.

This new core curriculum is the academic cornerstone of Vision 2039, Superintendent J. H. Binford Peay III's strategic initiative to improve VMI's programs and infrastructure with a focus on leader development. As such, the new core curriculum will enjoy the superintendent's full support.

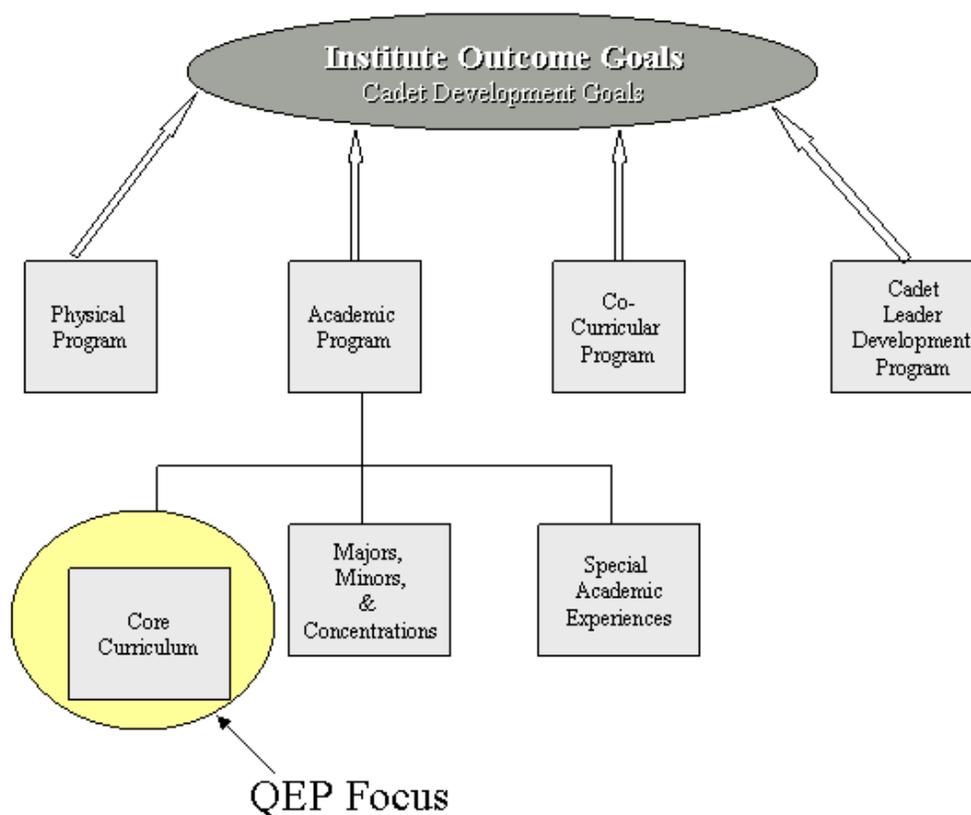
### **1.1 Theme and Objectives**

VMI has a long and distinguished history of developing leaders—leaders for industry, leaders for government, leaders for the military, leaders for all walks of life. The four years of a VMI cadetship have a proven record of transforming young people with promise into leaders ready to serve their fellow citizens and country. The school is committed to ensuring that this tradition of leadership and service continues far beyond VMI's bicentennial in 2039. This commitment is the driving force behind Vision 2039 and the new core curriculum.

### **1.2 History of the VMI Core Curriculum**

VMI's four major programs—Academic, Co-Curricular (Military), Physical, and Cadet Leader Development—each contribute, in an integrated fashion, to the school's outcome goals and, by extension, to its mission of creating citizen-soldiers. As shown in Figure 1, VMI's QEP focuses on one sub-element of the Academic Program's role in that effort: the design and implementation of a new core curriculum.

Figure 1. The Place of VMI's Core Curriculum



This is the first time that VMI has undertaken a thorough, systematic review of its core curriculum in several decades. The last time that VMI examined its core curriculum in any way was in the late 1990s, when a committee was formed to articulate the core curriculum's goals. At that time, the core curriculum was defined as the introductory-level courses taken by all first-year students in English, history, chemistry, and mathematics. The committee sought to reaffirm the core curriculum already in place, rather than to consider whether the core curriculum ought to be revised in any serious way. The primary tangible result of their work was a statement of "Common Goals for General Education Courses at VMI," which, beginning in the Fall 1998 semester, was included on the syllabi of all core curriculum courses (see Appendix 2).

In the Spring 2002 semester—just after the practice of putting the “Common Goals” statement on all core curriculum syllabi had ceased—a committee formed to recommend Academic Program Goals to serve as objectives for VMI’s academic program as a whole. Over the course of this committee’s work, it became clear that the core curriculum needed study, as it had become a set of required first-year courses and nothing more. There was no longer an agreed-upon rationale as to *why* students were required to take these particular courses or *what* these particular courses, taken as a unit, were expected to teach them. The courses shared no common purpose, no integration of effort, and no coordination of activities. A strategic review of the core curriculum was in order, but it was thought best not to proceed until after the arrival of Superintendent Peay, who would assume leadership of VMI in June 2003.

In August 2004, Superintendent Peay endorsed the recommendation of an Academic Program Focus Group that VMI’s core curriculum undergo review. In January 2005, the Core Curriculum Review Committee was formed, and the work to revitalize VMI’s core curriculum was under way (see timeline in Appendix 3).

### **1.3 QEP Leadership and Faculty Involvement**

The creation of this QEP has provided an opportunity for the active involvement of every interested member of the VMI faculty. It has received wide discussion within academic departments, the Academic Board, and the administration. As a result, VMI’s QEP reflects the thinking of the faculty and administration as a body, not as individual persons with special interests. Thus, it is an organic document that will be referenced, refined, and applied by all constituencies, not only during the core curriculum implementation period, but well into the future as the VMI community continues to develop and strengthen its core curriculum in its desire to promote the best environment and programs for VMI’s students to acquire our desired learning outcomes.

Working under the guidance of the QEP Steering Committee, three other QEP committees worked to create VMI’s QEP: the Core Curriculum Oversight Committee, the Assessment Working Group, and the Resources Working Group. These committees worked in a mutually reinforcing and integrated way, with the chairs of each committee routinely attending the meetings of all three committees. The desired learning outcomes for the new core curriculum were formulated by the Core Curriculum Oversight Committee. Methods for assessing these

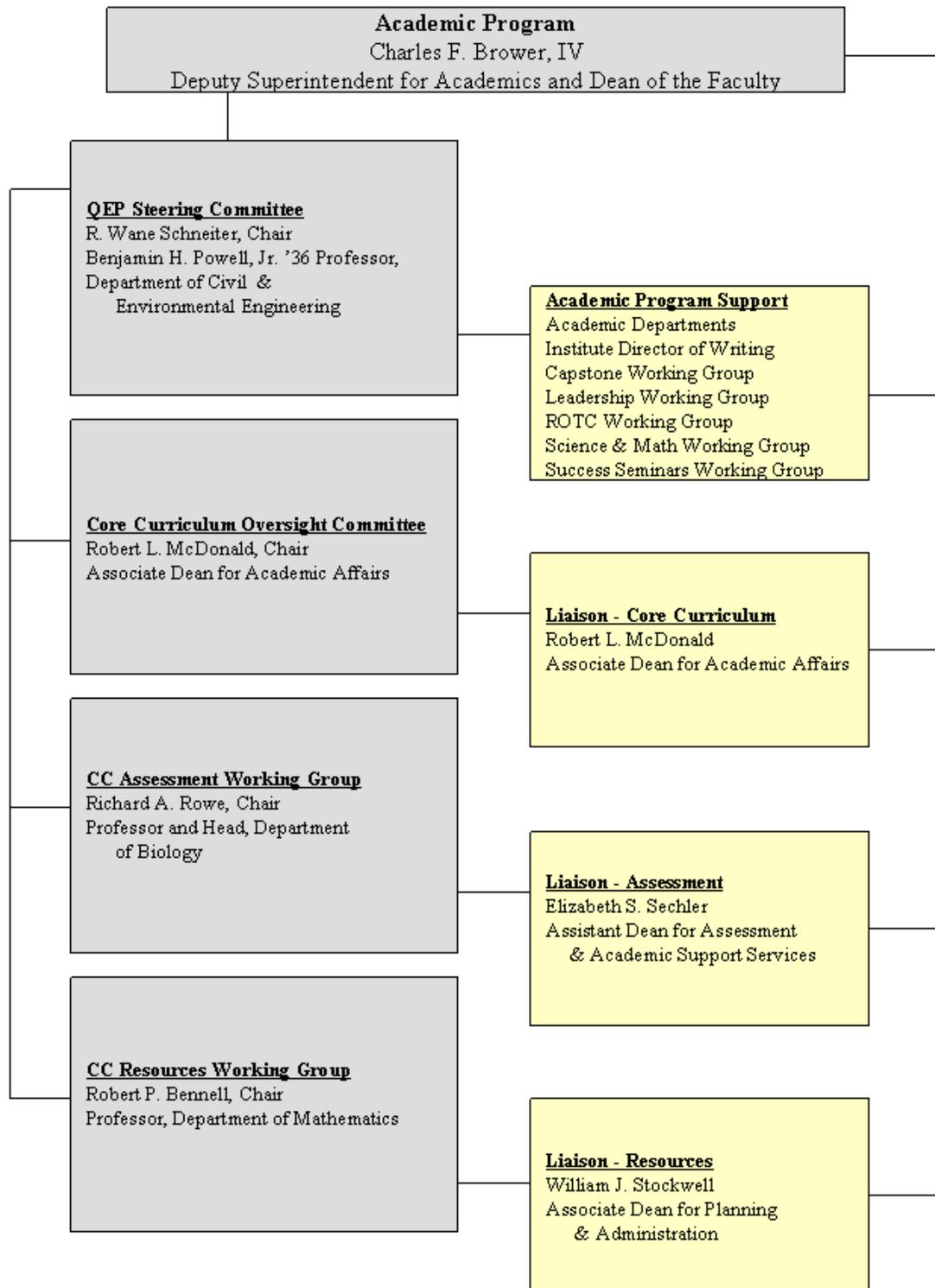
learning outcomes (and for evaluating the QEP as a whole) were then the responsibility of the Assessment Working Group. Finally, studying resource needs and allocating resources for the redesigned core curriculum and its evaluation and assessment were the domain of the Resources Working Group.

These QEP committees were composed principally of active members of the VMI faculty, who worked in coordination with senior administrators responsible for academic affairs; assessment and academic support; and planning and administration. These administrators provided direct liaisons between the QEP committees and the Dean of the Faculty, who serves as VMI's Deputy Superintendent for Academics. Finally, the work of all of these was supported by the various academic program departments and their faculty, committees, and working groups.

It is especially important to note the broad cross-section of VMI faculty who have contributed to this QEP, particularly in the work of the Core Curriculum Oversight Committee, whose members include representatives from every academic department. As well, there have been four faculty forums for discussion of the new core curriculum and an early draft of the QEP. On average, more than half of VMI's faculty attended each of these meetings, which resulted in both the reconsideration of old issues and the consideration of new issues previously overlooked. For examples of these issues and a further discussion of faculty efforts on the QEP, see section 3.3, "Evaluation of the QEP to Date."

Figure 2 represents the coordinated efforts of VMI's faculty and academic leadership in the creation of this QEP. Their efforts have been supported by the SACS Leadership Team and the Institute Planning Committee. Beginning with the 2006-07 academic year, as formal implementation of the QEP begins, the Assessment Working Group and the Resources Working Group will become part of the Core Curriculum Oversight Committee.

Figure 2. QEP Development Leadership



## 2 DEVELOPMENT AND IMPLEMENTATION

Work on VMI's core curriculum began with the conviction that the new core should grow from the Institute's educational mission. *Strong Foundations: Twelve Principles for Effective General Education Programs* observes that college faculties are increasingly discovering that "general education must be much more than breadth and simple exposure to fields of study." Among this report's principles for "articulating a compelling vision" for general education is the belief that a "living and vibrant educational vision must be solidly grounded in an institution's mission—its sense of public purpose, its history and tradition. . . ." This is surely one of the greatest strengths of VMI. Since its founding in 1839, VMI has never lost sight of its stated mission to produce educated and honorable graduates "prepared for the varied work of civil life, imbued with love of learning, confident in the functions and attitudes of leadership, possessing a high sense of public service, advocates of the American Democracy and free enterprise system, and ready as citizen-soldiers to defend their country in time of national peril."

### 2.1 Best Practices

The architects of the new core curriculum sought to create a rigorous, challenging educational experience in keeping with both VMI's mission and current best practices in curriculum design. In addition to an extensive review of current thinking about general education and core curricula, they were guided largely by the work of the Association of American Colleges and Universities, particularly *Taking Responsibility for the Quality of the Baccalaureate Degree: A Report from the Greater Expectations Project on Accreditation and Assessment* (2004), a report that involved representatives from six major regional (institutional) accrediting agencies, including the Southern Association of Colleges and Schools; specialized accreditors in business (the Association to Advance Collegiate Schools of Business), engineering (the Accreditation Board for Engineering and Technology), nursing (Commission on Collegiate Nursing Education), and teaching (National Council for Accreditation of Teacher Education); a national accrediting agency for liberal education (the American Academy for Liberal Education, represented by a professor of leadership, ethics, and law from the United States Naval Academy); eight educational associations, including the American Association for Health Education; and faculty members and academic administrators from a variety of colleges and universities.

Over the course of the research and design of the new core curriculum, a number of guiding principles emerged. To begin, the new core curriculum, in light of the central role that it should play in achieving VMI's mission, will extend across the full four-year cadet experience, as opposed to the current core, which is a collection of required first-year courses only. As well, the new core curriculum has a clearly articulated rationale, unlike the current core, which students may well regard as a burden to be overcome before embarking in their major fields of study.

Of course, one concern is that students will regard the new core curriculum as a *long-term* distraction from their major fields of study. As Jerry G. Gaff observes in *General Education: The Changing Agenda*, "[T]oday's campus leaders must attend not merely to the coherence of the general education program but also to the interrelation of general education and the majors." Therefore, the architects of the new core curriculum recognized that it must have more than just a clearly articulated rationale; they saw, as well, that students must recognize that the new core curriculum complements, rather than competes with, their major fields. Thus, to generate interest among students and to give them a sense of ownership of the new core curriculum, the new core will allow them a degree of flexibility and choice.

Furthermore, allowing *students* greater flexibility will have an additional benefit: Given a greater variety of core curriculum courses, there will be more academic departments and by extension more *faculty* invested in the new core curriculum. As noted in *Taking Responsibility for the Quality of the Baccalaureate Degree*, "Ownership and commitment are the bases for converting the statement of learning outcomes into educational reality. Without ownership and commitment, implementation becomes difficult and haphazard." Thus, in addition to involving as many faculty as possible in the QEP planning process (see section 1.3), the architects of the new core curriculum recognized the importance of involving as many faculty as possible *in the classroom*, teaching core curriculum courses. In part, this will be accomplished by the broader four-year core curriculum, which will naturally involve many more academic departments and faculty than does the current core curriculum. As well, faculty will have opportunities to revise old courses and to create new courses for inclusion in the new core curriculum, which will further their sense of ownership of the new core curriculum and which will thereby help to ensure its success.

## 2.2 The New Core Curriculum

In “Learning Goals in Mission Statements: Implications for Educational Leadership,” Jack Meacham and Jerry G. Graff argue that the essential way in which a college establishes its integrity is by remaining true to its stated mission. VMI has shown this integrity in the creation of its academic program goals. These goals were stated in “The VMI Core Curriculum: The Nucleus of Effective Citizenship and Leadership,” a document that was approved by VMI’s Academic Board on 30 November 2005 and then by Superintendent Peay on 6 March 2006 (see Appendix 4). These academic program goals state that VMI will graduate students who possess the following attributes:

- *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 design and conduct scientific experiments as well as analyze and interpret data* [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 lifetime commitment to physical fitness and wellness* [Health and Wellness (HWL)];  
and

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

VMI's unique mission is reflected particularly in the first two goals listed, "Citizenship" and "Leadership and Human Relationships." VMI's new core curriculum will contribute to *all* of the goals listed by helping students to develop "*habits of mind* (learning to read, think, inquire, and communicate effectively) and *habits of living* (committing themselves to ethical behavior and lifelong learning and wellness)." In so doing, the new core curriculum will establish the nucleus of effective citizenship and leadership necessary to create citizen-soldiers for the 21<sup>st</sup> century.

### **2.3 Learning Outcomes for the New Core Curriculum**

Work on the QEP itself began with the Core Curriculum Oversight Committee. Their major task was to answer this question: Given the program goals established by the Academic Board (and listed above), what do we expect the new core curriculum to achieve for every student, regardless of academic major? The Core Curriculum Oversight Committee framed its answer as a list of core curriculum learning outcomes, which are grouped according to the academic program goals that they support. It is important to note that these learning outcomes do not merely restate the academic program goals. Rather, they represent the subset of learning outcomes that are specifically addressed by the courses and experiences in the Institute's core curriculum. In every case, these learning outcomes were grounded in research into the best practices of the appropriate disciplines, as documented below.

#### **2.3.1 Citizenship (CIT)**

*Rationale:* Examining citizens' involvement in the country's affairs, a recent study by the Brookings Institution concluded that "clearly, all is not well in our civic life" (Macedo). VMI's mission to develop "citizen-soldiers" demands that we address this challenge. Specifically, we must educate students about the responsibilities of citizenship in a democracy and must develop in them an appreciation of why we deem democracy worth defending. Because more than half of VMI graduates will serve in some capacity in the military, we must understand that the core of democracy "assumes that our rights and liberties do not come for free, that unless we assume the responsibilities of citizens we will not be able to preserve them"

(Barber). As the Organization of American Historians has stated, we must engage “in a national conversation about the role of history in furthering democracy and civic engagement.” This means understanding America’s place in history and the opportunities and limits of its power internationally. VMI’s academic program responds directly to the charge of Constantine Curris, President of the American Association of State Colleges and Universities: “[W]e need to focus far greater attention not only on democratic principles but also on the meaning and personal responsibilities attendant upon being an American citizen.”

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Delineate the responsibilities of citizenship in a liberal democracy.
2. Explain the fundamental principles of the U.S. Constitution.
3. Differentiate among different forms of democracy.
4. Describe the role of the military within the American democratic polity.
5. Discuss the historical origins of the “citizen-soldier,” describe the current civil-military relations in 21<sup>st</sup> century U.S., and be able to compare civil military relations in the U.S. to those of other countries.

### **2.3.2 Leadership and Human Relationships (LHR)**

*Rationale:* Effective and ethical leadership is vital to the success of all organizations. Leadership is defined as “the process of influencing an organized group toward accomplishing its goals” (Roach & Behling). It is possible to differentiate effective from ineffective leaders (and leaders from followers) using the following characteristics in combination: vision, ability, enthusiasm, emotional stability, concern for others, self-confidence, 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 ill, a leader’s 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 core curriculum prepares graduates who can

1. Articulate a philosophy of leadership that includes a statement of his/her personal code of ethics.
2. Identify moral and ethical issues inherent in a task to be completed by a group.
3. Design a plan of action that takes these issues into account and conforms to his/her philosophy of leadership.
4. Motivate the group to complete the task.
5. Evaluate the group's progress and make any necessary moral, ethical, or structural revisions in the plan.

**2.3.3 Communication (COM)**

*Rationale:* One of the shared goals of colleges and universities nationwide is to prepare students to communicate effectively both in the academy and in their professional and civic lives. Courses that contribute to “communication across the curriculum” efforts are grounded in the common belief that “writing and speaking are central to a wide range of occupations and disciplines, and industry leaders expect graduates to have expertise in both, along all dimensions” (Anson). External stakeholders like the State Council of Higher Education in Virginia (SCHEV) confirm this belief when they designate both written and oral communication as “core competencies” (“Overview”). To ensure the development of strong written communication abilities, VMI embraces the philosophy that “Learning to write is a complex process, both individual and social, that takes place over time with continued practice and informed guidance” (“WPA”), beginning in first-year composition and extended in writing-intensive courses in the disciplines. Building upon the rhetorical principles taught in writing, the Public Speaking course develops students’ competencies in oral communication that will enable them “to effectively participate in the workplace and society” (*NPEC*).

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Analyze the audience, occasion, and purpose of a rhetorical situation in order to formulate a response to an idea or problem.
2. Generate ideas through both discovery and consultation of a variety of sources.
3. Develop ideas fully, offering compelling support and evidence for assertions or conclusions.
4. Organize ideas coherently, integrating sources effectively and documenting them appropriately.
5. Edit writing for clarity, precision, and stylistic effectiveness.
6. Proofread writing to ensure grammatical and mechanical correctness.

7. Speak in language that is grammatically correct and appropriate for the particular audience.
8. Speak at an appropriate pace and at sufficient volume, sustain eye contact, and use body language effectively to communicate points.
9. Employ visual aids that are designed and timed to reinforce points.

#### **2.3.4 Scientific Inquiry (SCI)**

*Rationale:* Experiences in science contribute to the development of well-rounded graduates who can think in interdisciplinary dimensions and who possess the basic knowledge to participate in conversations about our nation’s scientific and technological future. Because VMI regards scientific inquiry as one of the cornerstones for the intellectual development of critical thinking and analytical skills, we require that all entering students take two semesters of laboratory-based science. These high-quality introductory courses actively engage students’ imagination and creativity and fortify them throughout their upper-division education. Consistent with the National Academy of Science’s recommendations for undergraduate education (*Transforming*), we emphasize learning science by doing science and provide active learning experiences in a range of settings.

##### *Learning Outcomes:*

The core curriculum prepares graduates who can

1. Design scientific experiments employing the principles of the scientific method.
2. Conduct a literature search using appropriate information technology databases.
3. Employ appropriate technology to conduct the experiment.
4. Collect and organize (categorize) data.
5. Statistically analyze and present data.
6. Interpret and draw conclusions from experimental results.
7. Use appropriate scientific models/techniques for real-world problems.
8. Understand the role and impact of science on society.

#### **2.3.5 Mathematical Inquiry (MAI)**

*Rationale:* 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 literate society. VMI embraces the Mathematics Association of America’s belief that students must learn “to confront, explore, and communicate important ideas of modern mathematics and the uses of mathematics in society.” Our curriculum addresses this goal by requiring high-quality introductory mathematics courses, with quantitative problem-rich experiences, that actively engage the students’ 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, these courses provide meaningful and appropriate foundations for problem-solving in advanced courses in other disciplines.

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Understand quantitative relationships, make geometric observations, and formulate sound estimations.
2. Work with abstract concepts, mathematical variables, and symbols.
3. Solve mathematical equations.
4. Read, interpret, and create graphical information.
5. Use appropriate mathematical technology.
6. Understand the effective, appropriate, and efficient use of mathematical techniques for real-world problems.

### **2.3.6 History and Culture (HIC)**

*Rationale:* Cultural understanding is essential for VMI graduates to function effectively in the world of the 21<sup>st</sup> century (Nussbaum; Stearns). Students must study history, languages, and culture in order to relate their own national identity to that of other cultures and global concerns generally; they must “understand other cultures in order to understand their [own] place in the world” (*Case for Change*).

As “citizens of the world” (Nussbaum), VMI graduates must understand both 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).

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Demonstrate understanding of the place and role of the United States in world history.
2. Demonstrate understanding of the processes of globalization.
3. Identify cultures of the world and the components and practices that distinguish them from others.
4. Discuss ways in which groups of people define themselves in a geo-political sense.
5. Demonstrate understanding of how history influences collective or individual behaviors.

6. Appreciate a culture's distinctiveness either through texts or experiential contact.
7. Understand societies of the past as models for how human beings organize themselves for solving life's problems.

### 2.3.7 Creative and Critical Thinking (CCT)

*Rationale:* Due to accelerating change in the world, successful college graduates in the 21<sup>st</sup> century must possess a high degree of flexibility and adaptability. These skills are often embodied in the ability to think both critically and creatively (*NPEC*). A 1997 national report on higher education provides a comprehensive definition of critical thinking that emphasizes reasoning “in an open-ended manner, with an unlimited number of solutions. The critical thinking process involves constructing the situation and supporting the reasoning behind a solution” (Jones et al.). Although a standard definition for creativity is still not agreed upon, a common thread that runs through all studies involves the notion of producing results “that are both original and appropriate . . . to the cultural context in which the creativity is based” (Sternberg). Creative individuals are usually identified as people “who regularly solved problems, designed products, or define new questions within a domain that was perceived novel” (Gardner). These definitions provided the foundation on which the VMI creative and critical thinking learning outcomes were based.

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Detect inconsistencies and common mistakes in reasoning within a discipline-specific framework.
2. Explain the logical connections between the core ideas of an argument or concept.
3. Solve problems systematically.
4. Evaluate evidence and establish causal relations between facts.
5. Apply counterfactual thinking within the context of a specific argument.
6. Distinguish among facts, inferences, and opinion by using specific and discrete examples.
7. Obtain relevant sources of information to solve problems (and distinguish between relevant and irrelevant sources).
8. Identify and integrate conflicting or ambiguous points of view or evidence and learn to make judgments on the basis of that analysis.
9. Recognize and work productively on projects that are open-ended or ill-defined.
10. Develop strategies to synthesize and transfer learning from one discipline to another.
11. Formulate original connections and relationships across a broad range of new ideas.
12. Explicate texts.

### 2.3.8 Technological Competence (TEC)

*Rationale:* In the context of this academic program goal, technology is taken to represent *information technology* as defined by the National Research Council's intellectual capabilities component: "the ability to apply information technology in complex and sustained situations, [and] encapsulate higher-level thinking in the context of information technology. Capabilities empower people to manipulate the medium to their advantage and to handle unintended and unexpected problems when they arise. The intellectual capabilities foster more abstract thinking about information and its manipulation" (*Being Fluent*). This captures the essence of VMI's academic program goal for technology.

The American Library Association (ALA) has expanded the concept of intellectual capabilities in information technology to define competency standards for what they term *information literacy* (*Presidential*). They define this as being able to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." This definition provides a framework for developing learning outcomes or, using the term of the ALA, "competency standards" (*Information*).

#### *Learning Outcomes:*

The core curriculum prepares graduates who can

1. Recognize available alternative information technologies and their appropriate applications.
2. Use technology tools to facilitate information management and dissemination.
3. Use technology to formulate and conduct an information search that includes a variety of reference sources.
4. Evaluate information, acquired using technology, in terms of accuracy, authority, bias, and relevance.
5. Apply appropriate ethical guidelines in using electronic media and published resources.
6. Apply information technology, in any of its various forms, to test hypotheses (i.e., evaluate cause and effect) and draw conclusions.

### 2.3.9 Lifelong Learning (LLL)

*Rationale:* One scholar recently reported that the volume of human knowledge currently doubles every two years (Pan). Colleges must therefore acknowledge that the capacity for "lifelong learning" is no longer a bonus goal of education; it is an imperative for preparing graduates who can function as self-directed learners and are able to adapt their skills and talents to new and evolving problems, vocational, civic, as well as personal.

In the context of this academic program goal, lifelong learning refers to “a continuous engagement in acquiring and applying knowledge and skills in the context of authentic, self-directed problems” (Fischer). VMI is committed to “equipping [students] with skills and competencies required to continue their own ‘self-education’ beyond the end of formal schooling” (Candy).

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Reflect on their learning processes, including making realistic assessments of their abilities and comprehension of subjects.
2. Recognize when additional information or expertise is necessary.
3. Function as self-directed learners.
4. Engage in a program of independent reading to gain new knowledge.

### **2.3.10 Health and Wellness (HWL)**

*Rationale:* Americans increasingly recognize the need for knowledge about the ways behaviors can affect quality of life. Although most Americans are living longer, the average person spends nearly 12 years in poor health, largely due to lifestyle habits (*Healthy*). The World Health Organization reports that “60-80% of people in the world—from both developed and developing countries—lead sedentary lifestyles, making it one of the more serious, yet insufficiently addressed, public health problems of our time” (“Physical”). VMI’s concepts of physical fitness and wellness respond to the World Health Organization’s reports (“Message,” “Physical”) and parallel the national health objectives detailed in the U.S. Department of Health and Human Services’ publication, *Healthy People 2010*. Through curricular requirements and co-curricular opportunities, we aim to encourage and promote the adoption of behaviors associated with improving the overall health status of all students and to encourage students to maintain those behaviors for a lifetime of physical fitness and wellness.

*Learning Outcomes:*

The core curriculum prepares graduates who can

1. Apply a working knowledge of exercise science principles, as related to physical fitness, to develop strategies for achieving and maintaining a healthy lifestyle.
2. Apply a working knowledge of wellness-related behaviors to achieve and maintain a healthy lifestyle.
3. Understand the potential benefits an active lifestyle has on the aging process.
4. Recognize the impact of physical inactivity on health and wellness in a societal context.

### 2.3.11 Public Service (PSV)

*Rationale:* The academy has historically been seen as the institution that marries liberal education to an awareness and commitment to public service. Indeed, this traditional model was described some ninety years ago by John Dewey, who argued that the improvement of the public good, and thus the health of a democracy, requires educated citizens to engage in public service. It follows then that a lack of active commitment to public service places the quality of civic life at risk. Numerous studies have concluded that America faces a growing problem due to an ongoing decline in the level of active commitment to concerns of the public domain (Thomas). Interestingly, recent surveys indicate that some two-thirds of college seniors volunteered or provided community service. But such service does not necessarily translate into long-term commitment of informed action (“Journey”).

In response, a growing number of academic institutions are re-thinking the relationship between a liberal education and student civic-mindedness (Rhoads). Given the unique mission of VMI to produce “citizen-soldiers,” we have a particular responsibility to address this issue.

#### *Learning Outcomes:*

The core curriculum prepares graduates who can

1. Actively seek and identify opportunities to participate in projects that enhance civic life, assuming roles of responsibility whenever possible.
2. Recognize the importance of participating in the public dialogue to enrich community life.
3. Understand the virtues and benefits of volunteer work and public service.
4. Recognize the significance of careers (civilian and military) dedicated to public service.
5. Discuss the significance of contributions made by individuals or groups, working in service of the public good.

## 2.4 Curriculum Design

The second stage of the Core Curriculum Oversight Committee’s work was to show how the design of the new core curriculum would support the desired learning outcomes. The overarching design of the new core curriculum, following the model established by the Academic Board (see Appendix 4), will contain the following components:

### **1. Key Competencies**

This component of the core curriculum will enable students to develop three key competencies necessary for success at VMI and in life after graduation: effective communication (both written and oral), analytical and creative thinking (including mathematical and scientific reasoning), and a commitment to life-long health and wellness.

## 2. Foundations of Citizenship and Leadership Development

This component of the core curriculum will provide students with opportunities to deepen their understanding of the rights and responsibilities of citizenship in a democratic society; prepare them for effective leadership and service to the nation, whether in the military or in another profession; and equip them for personal success in the VMI community and in their early life after graduation.

## 3. Perspectives on Civilization and Human Achievement

This component of the core curriculum will encourage students to contemplate and to think critically about major challenges, accomplishments, and errors of humanity on a global scale. The goal is to cultivate and energize students' capacity for self-examination through analysis of the products of civilization.

## 4. Integrative Experiences

This component of the core curriculum will help students refine and advance their higher-order reasoning and learning abilities by requiring them to integrate and apply key competencies as well as discipline-specific knowledge developed through the core curriculum and the major curricula.

A general framework for matching these components to particular courses in the core curriculum was developed and then approved by the Academic Board on 30 November 2005 (see Appendix 4). Each of the designated courses will serve as a context both for instruction related to core curriculum learning outcomes and for the assessment of those learning outcomes. While some learning outcomes will be addressed in a variety of courses, the intent here was to ensure that every learning outcome will be specifically addressed somewhere in the core curriculum.

Table 1 shows the relationship between core curriculum components, core courses, and the learning outcomes to be assessed. *Schedule Group* refers to the sequence in which elements of the new core curriculum will be implemented (see section 5, "Schedule," for details). For a discussion of the principles guiding the development of assessment methods, see section 3.4, "Plans for Assessment of the QEP."

Table 1. Structure and Assessment of the Core Curriculum

| Core Curriculum Component | Schedule Group | Credit Hours | Approved Courses  | Assessed Core Curriculum Learning Outcomes |
|---------------------------|----------------|--------------|---|--|
| <i>Key Competencies</i>   |                |              |   |  |
| Written Communication     | I              | 6            | English Composition I (EN101)<br>English Composition II (EN102)           | COM 1-6<br>PSV 2                           |
| Oral Communication        | I              | 1            | Public Speaking (SE300)   | COM 1-4, 7-9                               |
| Scientific Analysis       | IV             | 8            | Two core curriculum designated laboratory courses in the natural sciences | SCI 1-9                                    |

|   |     |          |  |                            |
|---|-----|----------|--|----------------------------|
| Mathematical Reasoning                                    | I   | 6        | Two core curriculum designated sequential courses in mathematics                 | MAI 1-6                    |
| Physical Education  | I   | 4        | Seven semesters of required and elective courses in physical education           | HWL 1-4                    |
| <i>Foundations of Citizenship and Leadership</i>          |     |          |  |                            |
| ROTC  | IV  | 12       | Progressive combination of eight courses of ROTC with associated leadership labs | CIT 3<br>LHR 1- 8<br>PSV 4 |
| Leadership  | II  | 3        | Interdisciplinary course on leadership   | LHR 1-9<br>CIT 2           |
| Success at VMI Seminars                                   | II  | 0        | Two-semester series of workshops   | LHR 9<br>CIT 1<br>LLL 1    |
| Success for Life Seminars                                 | II  | 0        | Two-semester series of seminars  | PSV 1-5<br>CIT 2           |
| <i>Perspectives on Civilization and Human Achievement</i> |     |          |  |                            |
| World History   | I   | 6        | Two core curriculum designated sequential courses in history                     | HIC 1-7<br>CIT 2-5         |
| Civilizations and Cultures                                | II  | 6        | Two core curriculum designated courses   | HIC 2, 4, 7                |
| <i>Integrative Experiences</i>                            |     |          |  |                            |
| Writing-Intensive Courses                                 | III | Variable | Two core curriculum and writing-intensive designated courses                     | COM 1-6, 9<br>TEC 1-6      |
| Capstone Experience                                       | III | Variable | A culminating experience in the academic major department                        | CCT 1-12<br>LLL 1-4        |

## 2.5 Course Development

No course may be offered in the new core curriculum until it has been approved by the Core Curriculum Oversight Committee, including those courses that are offered in the current core curriculum.

All new core curriculum courses must meet the following seven criteria:

1. Core curriculum courses may require prerequisites, but all core curriculum courses must be open to all qualified students. Except for capstone experiences and writing-intensive courses designed to satisfy the major writing-intensive requirement, no core curriculum course may be exclusive to a specific major.
2. Departments must demonstrate that (a) the appropriate learning outcomes listed in Table 1 are embedded in core curriculum courses and (b) best practices appropriate to the discipline have informed course design.
3. Stand-alone core curriculum courses must address all learning outcomes corresponding to the relevant core curriculum component (see Table 1).
4. In a required course sequence, all learning outcomes corresponding to the relevant core curriculum component must be addressed by the completion of the sequence (see Table 1).

5. If a core curriculum course is offered in multiple sections, the sponsoring department must appoint a course coordinator, who will ensure that (a) all sections address the appropriate learning outcomes and (b) all sections use common tools for assessing those learning outcomes. Assessment of learning outcomes will normally center on tools that assess semester-long (or sequence-long) learning, such as portfolios, term projects, and common final examinations.
6. All core curriculum courses must include, to the highest degree possible, attention to the following meta-competencies that are embedded in the Academic Program's goals: critical and creative thinking (CCT), written and oral communication (COM), technological competence (TEC), and the capacity and desire to pursue lifelong learning (LLL).
7. Courses designed to satisfy the *Scientific Analysis*, *Writing Intensive*, and *Capstone Experience* core curriculum components must meet additional criteria, as noted in Section E of the VMI Core Curriculum Course Proposal Form (see Appendix 5).

Core curriculum course proposals will be reviewed according to the following process:

1. *Notification.* The head of the academic department proposing the course will notify the chair of the Core Curriculum Oversight Committee of the planned proposal. *The Core Curriculum Oversight Committee recommends allowing at least one full semester for proposal development before submission.*
2. *Advisement.* The chair will assign members of the Core Curriculum Oversight Committee to advise the department in preparing the VMI Core Curriculum Course Proposal Form (see Appendix 5).
3. *Submission and Review.* The department head will submit the proposal to the Core Curriculum Oversight Committee. Following review by a subcommittee appropriate to the core curriculum component, the Core Curriculum Oversight Committee will have three possible actions:
  - a. *Approval as submitted.*
  - b. *Request for revision.* When a proposal appears promising but lacks documentation or elements that would make it a viable core curriculum course, the chair of the Core Curriculum Oversight Committee may assign a committee member to work with the department head in preparing a revised proposal.
  - c. *Denial.* A course may be turned down when the Core Curriculum Oversight Committee believes it does not meet the intent of the core curriculum requirement that it is proposed to address.

Each of these three decisions requires a consensus of the committee.

4. *Academic Board Involvement for Certain Approved Courses.* Wholly new courses or existing courses whose content is changed by more than 75% must also be approved by the Academic Board. Once the Core Curriculum Oversight Committee has approved the course, the chair will submit the proposal for review by the Academic Board's

Curriculum and Instruction Committee and, eventually, by the Academic Board. Existing courses whose content is not changed by more than 75% do not require Academic Board approval, though these courses will be presented to the Academic Board for their information.

The Core Curriculum Oversight Committee will review proposals twice annually:

*Fall Proposal Submission Schedule*

|              |   |
|--------------|---|
| February 15  | Department head notifies Core Curriculum Oversight Committee of plans to submit a proposal. Core Curriculum Oversight Committee liaisons for content, assessment, and resources assigned. |
| September 15 | Department head submits proposal to Core Curriculum Oversight Committee.  |
| November 15  | Core Curriculum Oversight Committee responds to proposal.   |

*Spring Proposal Submission Schedule*

|              |   |
|--------------|---|
| September 15 | Department head notifies Core Curriculum Oversight Committee of plans to submit a proposal. Core Curriculum Oversight Committee liaisons for content, assessment, and resources assigned. |
| February 15  | Department head submits proposal to Core Curriculum Oversight Committee.  |
| April 15     | Core Curriculum Oversight Committee responds to proposal.   |

Due to the registrar's deadlines for pre-registration and the time required for the Core Curriculum Oversight Committee to evaluate proposals thoroughly, *this schedule will normally require planning to begin at least one year before a course is first to be offered.*

### **3 EVALUATION AND ASSESSMENT**

As noted in *Taking Responsibility for the Quality of the Baccalaureate Degree*, “[I]ncreasingly, the higher education community as a whole is coming to view the achievement by students of desirable learning outcomes as the key indicator of quality [education].” Therefore, in evaluating the success of the QEP, primary emphasis will be placed on its impact on student learning. Initially, however, evaluation strategies must focus on planning and

implementation in order to provide crucial feedback to those with primary responsibility for the QEP.

### 3.1 Best Practices

In *The Art and Science of Assessing General Education Outcomes*, Andrea Leskes and Barbara Wright identify three functions of assessment: “it can inform students about their performance; demonstrate that an institution is fulfilling its mission; and most importantly, provide information for continuous improvement of student learning and program effectiveness.” In assessing the QEP, we are most concerned with the second and third of these. Therefore, given VMI’s mission of developing effective citizens and leaders, our assessment of the QEP will study whether the new core curriculum has enhanced students’ attainment of the knowledge, skills, and abilities required for effective citizenship and leadership.

A variety of practices will be employed in assessment. *Taking Responsibility for the Quality of the Baccalaureate Degree* observes that good assessment practices can include the following: formative and summative assessment; multiple methods that include both qualitative and quantitative data; home-grown assessment methods directly related to in-class assignments; measure of meta-competencies in addition to base-level competencies; and systematic and multidimensional assessment. This range of practices will be employed, as deemed appropriate, in assessing the QEP.

In choosing from among these assessment practices, it is vital that decisions represent faculty agreement on the central educational goals for all students (Leskes and Wright). In keeping with this guidance, the development of the QEP has involved the majority of the faculty and academic administration at VMI (see section 1.3, “QEP Leadership and Faculty Involvement” and Table 2, “Evaluation Matrix for Core Curriculum and QEP Effort”).

Planning for QEP evaluation and assessment has been under the purview of the Assessment Working Group, whose members have worked in collaboration with VMI’s Assistant Dean for Assessment and Academic Support.

### 3.2 Plans for Evaluation of the QEP

The success of the QEP will be judged using three related standards: *effort*, *effect*, and *achievement of purpose*. These standards, which have been derived from the SACS guidelines

on “Evaluating the QEP,” will be monitored during the full implementation period of the QEP (*Handbook for Reaffirmation of Accreditation*).

*Effort* will be gauged in terms of scope of community involvement; depth of engagement by the Core Curriculum Oversight Committee, Assessment Working Group, and Resources Working Group; allocation of adequate resources to support the project; and evidence of an ongoing critique of the QEP’s development and implementation. The last of these is especially important, as one key to the QEP’s long-term success will be the ability to make adjustments as needed.

The *effect* of the QEP will be measured primarily by assessment of the core curriculum components through both qualitative and quantitative systematic research. Emphasis here will be on the core curriculum’s learning outcomes. In addition, there will be ongoing study and documentation of unintended consequences.

Evaluation of *achievement of purpose* will focus on the initial rationale for the new core curriculum. At its inception, the Core Curriculum Review Committee identified six guiding principles that have defined the new core curriculum’s purpose. Our evaluation of the QEP and its impact on student learning will consider these points:

- The core curriculum is purposeful, with a rationale that provides coherence and expresses its evolution from VMI’s unique institutional mission.
- The core curriculum’s purpose is expressed not only in the distribution requirements but also in the goals for each core curriculum course that is taught.
- The core curriculum is rigorous, challenging students to develop knowledge and intellectual skills as well as habits of mind that are conducive to academic inquiry.
- The core curriculum is a broadening experience, complementing the specialization that occurs in the major. To generate interest and enthusiasm for learning in general, the core curriculum presents students with a degree of flexibility and choice.
- The core curriculum extends across the four-year student experience.
- The core curriculum is vested in more departments by conceiving structures that allow them to offer courses in satisfaction of certain requirements.

For a discussion of these points, see sections 2.1, 2.2, and 2.3.

### 3.3 Evaluation of the QEP to Date

At present, we can evaluate only institutional effort in planning for the QEP. To date, there have been four major opportunities for members of the VMI community to participate in this process:

- the work of the Core Curriculum Oversight Committee, Assessment Working Group, and Resources Working Group as they have studied key issues and made recommendations;
- the incorporation of a broad-based constituency into the QEP process;
- the creation of benchmarks and goals for implementing the core curriculum (dates, courses, assessment, resource planning); and
- the responses by various VMI constituencies to QEP planning, including those offered in post-wide open forums on the new core curriculum and the QEP.

Table 2 presents several of the benchmarks in *effort* that have been identified. While some of these benchmarks are simply points on the QEP timeline, they also represent significant moments at which VMI made commitments to the QEP process. As indicated, some of the benchmarks are “To Begin” at a later date. At present, we do not have a fixed date for the commencement of these activities, but they will represent important points in the implementation process.

Table 2. Evaluation Matrix for Core Curriculum and QEP Effort

| <b>Performance Goal</b>   | <b>Effort Outcome</b>   |
|---|---|
| Creation of a Core Curriculum Document That Identifies Themes and Specifies Distribution Requirements | <b>Met:</b> Approved by the Academic Board on 30 November 2005 and by the superintendent on 6 March 2006  |
| Development of the Learning Outcomes for the Academic Program Goals                                   | <b>Met:</b> Developed by Core Curriculum Oversight Committee and approved by Academic Board on 8 May 2006 |
| Broad-based Community Involvement   | <b>Core Curriculum Review Committee:</b> 11 faculty representing 9 academic departments                   |
|   | <b>Core Curriculum Oversight Committee:</b> 16 faculty representing 15 academic departments               |
|   | <b>Assessment Working Group:</b> 6 faculty representing 6 academic departments                            |

|  |   |
|--|---|
|  | <p><b>Resources Working Group:</b> 5 faculty representing 5 academic departments</p> <p><b>4 Faculty Forums:</b> On average, more than 50% of faculty attended each forum</p>   |
| Allocation of Resources  | <p><b>Commitment:</b> Financing for Leadership positions, and plans for reallocation of faculty positions in response to anticipated shifts in science enrollments</p> <p><b>Funded:</b> Faculty release-time for core curriculum course development</p>                      |
| Academic Program Goals and Learning Outcomes and the Core Curriculum Learning Outcomes Identified and Distributed Throughout the Core Curriculum | <p><b>Met:</b> Core Curriculum Oversight Committee developed core curriculum learning outcomes</p>  |
| Core Curriculum to Be Broad Based So That Students Will Develop Knowledge from Breadth of Coverage and Experiences                               | <p><b>Met:</b> Protocols established for course development and course approval</p>   |
| Measure the Impact of the Core Curriculum on Student Learning  | <p><b>To Begin:</b> Monitoring of courses within the core curriculum to ensure that learning outcomes are incorporated into courses and are being assessed</p>  |
|  | <p><b>To Begin:</b> Assessment of course selection and distribution by students under the current core curriculum in comparison to selection and distribution under the new core curriculum</p>   |
|  | <p><b>2006-07:</b> Collection of baseline data</p>  |
|  | <p><b>To Begin:</b> Collection of assessment data based upon a schedule to be developed once assessment methodologies are selected</p>  |
|  | <p><b>To Begin:</b> Assessment of senior-year experiences (Strategic Undergraduate Research Initiative, <i>VMI Undergraduate Research Review</i>, Undergraduate Research Symposium, presentations at conferences, publications) serve as the maximum level of achievement</p> |
| Increased Number of Courses Incorporated into the Core Curriculum  | <p><b>To Begin:</b> Assessment of the number of courses incorporated into the core curriculum</p>   |

|  |   |
|--|---|
| Increased Participation by Academic Departments in the Core Curriculum | <b>To Begin:</b> Assessment of the number of departments involved in teaching core curriculum courses |
|--|---|

Early evaluations of the QEP process have resulted in a variety of adjustments by either the QEP Steering Committee, the Core Curriculum Oversight Committee, the Assessment Working Group, or the Resources Working Group. These examples reflect the types of challenges that we expect to see in the future:

- *Implementation Schedule:* In developing an implementation plan for the new core curriculum, it became clear that due to building renovations, current faculty allocations, assessment demands, and monetary resources, the entire core curriculum could not be implemented at once. As a result, a phase-in schedule was developed that would allow some components of the core curriculum to be implemented during the first year (2007-08) and other components to be implemented in subsequent years consistent with resource allocations.
- *Collection of Baseline Data:* Following discussions of the implementation timeline, the Assessment Working Group recognized that it would not be feasible to collect baseline data on every learning outcome. Therefore, when they asked the Core Curriculum Oversight Committee to choose specific areas for baseline assessment, they asked the committee to identify areas with the greatest expected impact on student learning. These areas will be the initial focus for assessment and evaluation of the impact of the QEP.
- *Context for Assessment of Learning Outcomes:* The Core Curriculum Oversight Committee and the Assessment Working Group planned to use course-embedded assessments for measuring the achievement of the core curriculum learning outcomes. However, given that instruction in Technological Competence is not part of a single course, they decided to assess this outcome in another venue.
- *Limitation of Science Offerings I:* The Core Curriculum Review Committee considered geology as a fourth natural-science option (in addition to biology, chemistry, and physics). This possibility became part the core curriculum plan, while the Core Curriculum Oversight Committee and the Academic Board discussed faculty resource implications and the lack of geology as an academic major. The final decision *not* to include geology was made by the superintendent.
- *Limitation of Science Offerings II:* At present, the science departments have sequential courses in place that can become core curriculum courses, but do not have stand-alone versions of their introductory courses. Thus, the Resources Working Group recommended that the two-course science requirement begin with sequential courses and that stand-alone courses be considered at a later date. This

recommendation was based largely on the resource implications of the change in the science requirement, which will necessitate the reallocation of faculty slots from the Department of Chemistry to the Department of Biology to accommodate the latter's expected increase in enrollments (see section 4.1 for details).

- *Common Exam Periods:* The Assessment Working Group has recommended that some large, multi-section courses have a common final exam period. This will necessitate a change in the Academic Policies of VMI and will therefore require consideration by the Academic Board and other agencies, most notably the VMI Honor System.
- *Common Experience in ROTC:* What should constitute a “common experience” in ROTC? How do we balance the competing needs of (a) the ROTC detachments' mandate to prepare students for commissioning and (b) VMI's desire to provide both commissioning and non-commissioning students with the same experience? Given Vision 2039's goal of increasing the rate of commissioning graduates, this discussion has centered on how to keep all students on a commissioning track for as long as feasibly possible. Currently, students decide at the end of their sophomore years whether to commission. Extending the common ROTC experience and creating a *more* common experience between the different ROTC detachments would allow students longer to make this decision. However, the degree of commonality involved has major resource implications; therefore, the impact of this decision remains under study (see section 4.2 for details).

Evaluation is an on-going process. At the end of each semester, the Core Curriculum Oversight Committee will pause to consider how the QEP is progressing. While we will remain flexible enough to make necessary adjustments as the QEP moves toward full implementation, set benchmarks will be evaluated and new benchmarks will be established as evaluation progresses.

### **3.4 Plans for Early Assessment of the QEP**

Assessment planning began during the summer of 2006 and will continue until courses in all core curriculum components are offered. Initially, assessment planning will focus on two activities:

1. *Identifying those areas of the core curriculum that represent major shifts in emphasis or new initiatives for VMI.* After determining learning outcomes for each component of the new core curriculum, the Core Curriculum Oversight Committee identified three areas where major curricular shifts or new learning outcomes suggest that we should see substantial growth in students' abilities: *Citizenship (CIT)*, *Leadership and Human Relations (LHR)*, and *History and*

*Culture* (HIC). These areas are of special interest, as well, because of their particular relevance to VMI's efforts to provide the nucleus of effective citizenship and leadership for its students. Thus, we will focus our initial assessment efforts on these areas.

Improvements in these areas will be both curricular and pedagogical. Examples will include the following: for *History and Culture*, redesigning the existing World History sequence as a thematic (rather than chronological) exploration of how societies have organized themselves socially, politically, and militarily to meet human needs and solve problems, while examining the emergence of the United States as a distinctive example of this process; for *Leadership and Human Relations*, developing a new course and associated academic experiences that provide theoretical and practical instruction in principles of leadership; and for the *Cultures and Civilizations* elective requirement, expanding curricular opportunities to enhance students' appreciation of cultural distinctiveness and the complexities of globalization.

2. *Principles and Procedures for Assessing the Core Curriculum.* As assessment methods are selected for the learning outcomes embedded in core curriculum courses, preference will be given to methodologies that are part of the routine instruction and assessment of the courses. Whether these methodologies are developed locally or commercially, the assessment methods must be shown to meet contemporary standards of reliability and validity in educational measurement. Whenever possible, assessment activities that are currently in place in courses approved for the new core curriculum will be adapted to accommodate the appropriate learning outcomes. For example, the current assessment of World History courses includes a value-added, knowledge-based test that is balanced by region of the world and historical period. This approach can be adapted to incorporate the appropriate learning outcomes for both world and U.S. history.

As courses are developed for inclusion in the new core curriculum, faculty will consult the assessment literatures within their respective disciplines, so as to benefit from the specialized assessment expertise that has emerged from these studies. To assist faculty in this matter, the Assessment Working Group is developing a web site that will have examples of assessment methodologies that are appropriate to the different disciplines or learning outcomes. Furthermore, there will be assessment training for faculty members, especially those members of the Core Curriculum Oversight Committee assigned to assessment, who will serve as advisors in the development of assessment methods.

### **3.5 Plans for Assessment of Learning Outcomes**

As noted above, assessment of learning outcomes is the most important area of evaluation and assessment of this QEP, as this assessment will provide the clearest evidence that the new core curriculum is meeting its goal of improving student learning.

The assessment of learning outcomes will proceed in two phases.

The first phase, beginning in the spring of 2007, will be the collection of baseline data in the areas identified by the Core Curriculum Oversight Committee. The baseline data, when compared to subsequent core curriculum assessment data, will allow VMI to determine if students are improving in their attainment of the intended core curriculum learning outcomes. As well, these baseline data, when compared to future data sets, will permit evaluation of the progress of the core curriculum implementation.

In summary, this is the plan for gathering baseline data with a general description of how assessment integrates with the QEP schedule discussed in section 5:

1. In the Spring 2006 semester, the Core Curriculum Oversight Committee identified the subset of baseline learning outcomes to be assessed. The Core Curriculum Oversight Committee has decided to focus initial assessment on the Leadership and World History components of the core curriculum. These courses address outcomes related to three goals—Citizenship (CIT), Leadership and Human Relations (LHR), and History and Culture (HIC)—that are closely connected to the core curriculum's emphasis on creating the nucleus of effective leadership and citizenship.
2. During the Fall 2006 semester, the Core Curriculum Oversight Committee members assigned to assessment will begin interviewing heads of the academic departments to examine assessment instruments in place and to discuss the needs of core curriculum assessment. The Core Curriculum Oversight Committee will then either (a) confirm that the tools are consistent with best practices and are collecting the desired data or (b) help departments develop or select different assessment tools. If new assessment instruments must be developed or identified, the Office of Assessment and Institutional Research will assist the department with this process.
3. Beginning in Spring 2007, specific academic departments will collect baseline data in coordination with the Office of Assessment and Institutional Research.
4. Analysis of baseline data will begin during the summer of 2007. Reports to the academic departments and to the Core Curriculum Oversight Committee will be provided by the end of the summer. As each component of the core curriculum

becomes operational, assessment, assessment reporting, and responses to assessment will follow this schedule.

The second, concurrent phase of assessment will begin during the 2006-07 academic year and will continue until implementation of the core curriculum is complete. This phase will consist of the development of core curriculum courses and the collection, reporting, and evaluation of assessment data. This process must be initiated at least one year before a course is offered for the first time:

1. When a department notifies the Core Curriculum Oversight Committee of plans for a core curriculum course proposal, a representative from the committee affiliated with assessment will be assigned to work with the department head and course coordinator to provide advice on assessment and to serve as a liaison between the department and the Core Curriculum Oversight Committee.
2. Instructors and departments developing core curriculum courses will incorporate both best practices for instruction and for learning outcomes and their assessment into the fabric of these courses.
3. Formal course proposals must be submitted to the Core Curriculum Oversight Committee. Each proposal must both identify the proposed assessment tools (including the instrument and validation of the instrument) and provide a course plan (including a description of best instructional practices for the course topic, the learning outcomes to be assessed, and the schedule for assessment, as well as an explanation of the relevance of the proposed course to the core curriculum as a whole). If a multi-section course is proposed, the department must provide a plan to ensure that there is oversight of best practices and assessment. (See Appendix 5 for the Core Curriculum Course Proposal Form.)
4. The instructors and/or their departments will establish a structure for reporting assessment data to the Core Curriculum Oversight Committee via the Office of Assessment and Institutional Research.

The Assessment Working Group anticipates that most assessment will entail tools woven into the customary instructional or assessment activities of the courses. For certain learning outcomes, however, it may be necessary to conduct assessment in other settings. The assessment of leadership skills, for example, may require alternative settings.

The reporting structure for assessment has not yet been determined. Traditionally, each academic department has detailed its assessment activities in a report that is submitted each June. It is possible, however, that the assessment data for core curriculum courses will be submitted separately to the Office of Assessment and Institutional Research and not included in

these annual reports. But this recommendation, if made by the Core Curriculum Oversight Committee, would first require submission to the Academic Board for their comment and approval.

To assist departments in planning for assessment, the Core Curriculum Oversight Committee will offer one or more assessment workshops during the first year of core curriculum implementation with annual or biannual workshops to follow thereafter (depending on demand). As well, members of the Core Curriculum Oversight Committee assigned to assessment will receive training in assessment to assist them in their role as advisors to the departments. The Core Curriculum Oversight Committee will also develop a resource website that will contain examples of useful assessment tools and rubrics, as well as general discussions of assessment practices. This site will include links to different assessment programs and protocols that are in use at other academic institutions. Instructors and departments will be encouraged to use these protocols or to modify them to fit the demands of their courses and learning outcomes. The Assessment Resource Site will be an active website maintained by the Core Curriculum Oversight Committee.

#### **4 RESOURCES**

The Resources Working Group was charged with estimating the cost of the resources required to implement the new core curriculum. For this purpose, the core curriculum courses were divided into the four components discussed in section 2.4:

1. Key Competencies
2. Foundations of Citizenship and Leadership
3. Perspectives on Civilization and Human Achievement
4. Integrative Experiences

The cost of evaluation and assessment was considered as a separate, fifth category.

Given that VMI is currently undergoing an extended period of renovation and construction, the availability of classrooms, laboratories, and faculty offices is a significant issue. Therefore, the Resources Working Group used the VMI Capital Projects Planning Schedule as a guide to the availability dates of particular buildings, while keeping in mind that this tentative schedule is subject to funding priorities, design approvals, and the timely completion of construction projects.

When the extension of Barracks is completed, the VMI student body will grow to approximately 1500 students, beginning in the 2010-11 academic year. However, construction deadlines are uncertain, so the current population of 1362 students, with an annual freshman class of 400, was used to estimate the resource requirements for the first five years of the new core curriculum.

Table 6, which appears at the end of section 4, summarizes the estimated implementation budget for the new core curriculum for 2006-11.

#### 4.1 Resources for Key Competencies

Table 3 lists the courses that will satisfy the Key Competencies requirements:

Table 3. Core Curriculum: Key Competencies

|   |  |
|---|--|
| Written Communication (6 credit hours)  | English Composition I (EN101)<br>English Composition II (EN102)                            |
| Oral Communication (1 credit hour)      | Public Speaking (SE300)  |
| Scientific Analysis (8 credit hours)    | a sequence of two four-hour laboratory courses in either Biology, Chemistry or Physics     |
| Mathematical Reasoning (6 credit hours) | a sequence of two three-hour courses in Mathematics  |
| Physical Education (4 credit hours)     | Principles of Physical Conditioning (PE300) plus 6 half-hour courses of physical education |

English Composition I and II and Public Speaking will be implemented in the 2007-08 academic year. Enrollment for these courses will not change as a consequence of their inclusion in the new core curriculum. Enough qualified faculty are already employed to teach these courses, and the physical plant required to house the courses already exists.

The new requirement for Scientific Analysis differs significantly from the current requirement of a two-semester Chemistry sequence. In the new core curriculum, if major requirements do not specify, students may select from Biology, Chemistry, or Physics. Furthermore, students in certain majors may eventually have the option to choose two stand-alone courses rather than a two-course sequence.

During the Fall 2005 semester, in an effort to estimate the demand for each of the sciences, the Resources Working Group asked department heads to indicate their likely core

curriculum science requirement. They were asked to assume that all courses will be available in versions for both science majors and non-science majors but that stand-alone course will *not* yet be available. Their responses are summarized in Table 4:

Table 4. New Core Curriculum Science Requirement by Academic Major

| <b>Department</b>                 | <b>Core Curriculum Science</b> | <b>Version</b>   |
|-----------------------------------|--------------------------------|--|
| Applied Mathematics               | student's choice               | for science majors                                     |
| Biology                           | Chemistry                      | for science majors                                     |
| Chemistry                         | Chemistry                      | for science majors                                     |
| Civil & Environmental Engineering | Physics                        | for science majors                                     |
| Computer Science                  | student's choice               | for science majors                                     |
| Economics & Business              | student's choice               | either   |
| Electrical & Computer Engineering | Physics                        | for science majors                                     |
| English                           | student's choice               | either   |
| History                           | student's choice               | either   |
| International Studies             | student's choice               | either   |
| Mechanical Engineering            | Physics                        | for science majors                                     |
| Modern Languages & Cultures       | student's choice               | either   |
| Physics                           | Biology or Chemistry           | for science majors                                     |
| Psychology                        | Biology                        | BS – for science majors<br>BA – for non-science majors |

The Resource Working Group estimates that, of the students who choose their science courses, 80% will choose Biology, 15% will choose Chemistry, and 5% will choose Physics. Using these estimates and a three-year average enrollment for each major, the Resource Working Group predicts a significant shift in enrollment from Chemistry to Biology with little change in Physics. Satisfying this change in demand will require the reallocation of two or three faculty positions to Biology, and these faculty will require offices and laboratories for teaching and research. Given that the new Scientific Analysis requirement is particularly sensitive to the availability of personnel and physical resources, the Resources Working Group has recommended that this requirement be implemented in two phases, as described in Table 5:

Table 5. Core Curriculum Science Requirement Implementation Plan

|                                       |  |
|---------------------------------------|--|
| Phase I:<br>2008-09<br>Academic Year  | <p>Implementation of the Scientific Analysis requirement without stand-alone courses. Subject to the requirements of their majors, students will take a sequence of two four-hour laboratory courses in either Biology, Chemistry, or Physics.</p> <p>Each of the sciences will offer their courses in versions for science majors and for non-science majors. In the short term, enrollments in each of sciences will necessarily be limited by availability of faculty and laboratory facilities.</p> <p>Two or three full-time positions will be reallocated to the Department of Biology (two from the Department of Chemistry and a third, if required, from a department yet to be determined). As well, the Department of Biology will receive funding for a full-time laboratory technician.</p> |
| Phase II:<br>Date to be<br>determined | Demand for stand-alone courses will be evaluated after the sequence courses are established.   |

The QEP Steering Committee has approved this initial limitation of science offerings, which should allow for greater flexibility in implementing the new core curriculum (see section 5).

Under the plan outlined in Table 5, budgetary requirements for the Scientific Analysis component were calculated. With appropriate revision, the two current Chemistry sequences

Chemical Science I (CH131) with Laboratory (CH111)  
 Chemical Science II (CH132) with Laboratory (CH112)  
 and

Introductory College Chemistry I (CH137) with Laboratory (CH117)  
 Introductory College Chemistry II (CH138) with Laboratory (CH118)

will become the initial core curriculum course offerings from Chemistry. Similarly, with appropriate revision, the two current Physics sequences

General Physics I (PY201) with Laboratory (PY211)  
 General Physics II (PY202) with Laboratory (PY212)  
 and

General Physics I (PY207) with Laboratory (PY217)  
 General Physics II (PY208) with Laboratory (PY218)

will become the initial core curriculum course offerings from Physics.

Currently, the Department of Biology offers the eight-hour sequence of General Biology I and II (BI101 and BI102), which, with appropriate revision, will become General Biology for science majors. One-time funding of \$4,629 will provide course-release time during the 2006-07 academic year for a member of the Biology faculty to design a General Biology sequence for non-science majors. The department expects to pilot this sequence during 2007-08 and to implement it in the core curriculum during 2008-09.

As well, the Departments of Biology and Physics will each be awarded one-time funding of \$20,000 during the 2007-08 academic year for the purchase of laboratory equipment to support their core curriculum courses, and they will be allocated additional annual recurring operating funds of \$7,000 and \$5,000, respectively, from 2008-09 onwards.

At present, the Department of Chemistry employs its own dedicated laboratory technician while Biology and Physics share a single technician. Beginning with the 2008-09 academic year, each department will have its own dedicated laboratory technician, which will require a recurring annual budgetary increase of \$50,835.

Additional part-time faculty will also be needed, particularly in Biology. This will mean a recurring annual cost beginning at \$9,628 for two part-time faculty when the new Biology courses are piloted in 2007-08. This amount will rise to \$21,078 for four part-time faculty when the new core curriculum courses in the sciences are implemented in 2008-09.

Finally, the last item of concern in Scientific Analysis is the physical plant. When Mallory Hall (which houses the Department of Physics) and the New Science Building (which houses the Departments of Chemistry and Biology) are both fully available, there will be adequate classroom and laboratory space to house the new core curriculum science program. One-time funding will be needed, however, to provide office space and research facilities for the new Biology faculty. This cost, which will be incurred over the period 2007-09, could be as much as \$50,000 if significant renovation is required.

To fulfill the Mathematical Reasoning requirement, students will likely take either the Probability and Statistics sequence (MA105 and MA106) or the Calculus and Analytic Geometry sequence (MA123 and MA124). Versions of these courses revised for the new core curriculum will be implemented in the 2007-08 academic year. Their enrollment should not change significantly as a consequence of their inclusion in the new core curriculum, and enough qualified faculty are currently employed to teach them. If the renovation of Mallory Hall (which

houses the Department of Mathematics and Computer Science) is not be completed in time for the Fall 2007 semester, classrooms and computer laboratories are available in other buildings to house these courses.

The new Physical Education requirement no longer requires students to take either Beginning Swimming (PE100) or Boxing (PE102) during their first semester at VMI. Principles of Physical Conditioning (PE300) will change from a half-hour course to a one-hour course, and it will be taken during the second semester of the sophomore year or the first semester of the junior year. Overall enrollment for Physical Education courses will not be affected by these changes. Enough qualified faculty are currently employed to teach these courses, and the necessary physical plant already exists. The new PE program will be implemented during the Spring 2008 semester. During 2008-09, the Department of Physical Education will require a one-time budget of \$10,000 for the purchase of equipment necessary to add academic rigor to PE300.

#### **4.2 Resources for Foundations of Citizenship and Leadership**

The Foundations of Citizenship and Leadership requirements will be filled by courses in ROTC (12 credit hours) and Leadership (3 credit hours), and the seminar courses Success at VMI and Success for Life (0 credit pass/fail courses).

Ideally, VMI would have ROTC be a common experience for all students. However, students who accept a military commission have requirements, as defined by the Department of Defense, that must be included in their ROTC training, particularly in their final semester. The Resources Working Group has determined that it would be neither possible nor beneficial to include non-commissioning students in these same laboratory classes and field-training exercises. Nevertheless, the three ROTC department heads believe that practical laboratory and field-training exercises are essential if students are to achieve the learning outcomes in Leadership and Human Relationships (see section 2.3.2).

Thus, VMI is currently considering a seven-semester common experience in ROTC for all students. In this plan, students who are not seeking a commission will remain in their original ROTC branch (as declared at matriculation) for their full four years at VMI. This plan, however, is expensive. Figures provided by the ROTC branches indicate that implementation over five years (2007-2012) would cost approximately \$2.5 million. Given that this would make ROTC

the most expensive component of the QEP, a scaled-down common experience of six or fewer semesters also remains under consideration. The final determination of what will constitute the common ROTC experience will be made after further study during the 2006-07 academic year.

The Leadership course, which will first be offered in the Spring 2008 semester, will require the creation of three new faculty positions. These faculty will design and teach this course, as well as teaching courses in Leadership in other areas of the academic program. The hiring process will take place during the 2006-07 academic year with the goal of these faculty joining VMI by the Fall 2007 semester. The total cost of these positions will begin at \$212,880 for the 2007-08 academic year, with a recurring office operations budget of \$3,000 per year. Funding for one of these positions has already been provided through a five-year grant from the Jackson-Hope Fund, a restricted private fund in support of academic excellence. In order to search for all three positions during 2006-07, funding for the remaining two positions must be committed by August 2006.

The final courses in Foundations of Citizenship and Leadership are the Success at VMI and Success for Life seminars. Current estimates of five-year implementation costs for these courses are approximately \$227,000 and \$143,000, respectively. Under consideration, however, is a plan to combine the most important elements of these courses into a single course. As with the ROTC courses, specific plans for these seminars have been deferred pending further study during the 2006-07 academic year.

#### **4.3 Resources for Perspectives on Civilization and Human Achievement**

The Perspectives on Civilization and Human Achievement requirement will be satisfied by the two-course World History sequence (6 total credit hours) and an additional pair of courses (6 total credit hours) selected from a menu of courses that will be approved by the Core Curriculum Oversight Committee.

After appropriate syllabi revisions and the inclusion of approved assessment measures, the two current World History courses (HI103 and HI104) will be implemented into the new core curriculum in 2007-08. Enrollment for these courses will not change as a consequence of their inclusion in the new core curriculum. Enough qualified faculty are currently employed to teach these courses, and the necessary physical plant already exists.

The gradual implementation of a full menu of Civilizations and Cultures courses, with each satisfying the appropriate program goals, learning outcomes, and assessment measures, will take several years. An early financial investment will be required to ensure that students enjoy some freedom of choice during the first years of this process. Thus, a course-development budget of \$27,989—a faculty stipend of \$2,000 per course for 13 courses—has been allocated for this purpose. This funding will begin in 2006-07 with \$10,765 for the development of five courses to be implemented during the 2007-08 academic year; this will be followed in each of the following four years by \$4,306 for the development of two additional courses per year. Therefore, by the 2011-12 academic year, students will have at least 13 possible courses to satisfy the two-course requirement for Civilizations and Cultures. Furthermore, the availability of Study Abroad experiences and other courses not supported by these funds, such as current courses modified to meet core curriculum requirements, should extend the menu considerably.

#### **4.4 Resources for Integrative Experiences**

The Integrative Experiences requirement will be satisfied by two writing-intensive courses and a capstone experience within the student's major field of study.

VMI's Writing Across the Curriculum program is well established, and its writing-intensive courses should require only minor modifications to receive formal core curriculum designation. These courses will be implemented into the new core curriculum during the 2006-07 academic year. However, given that students must complete two semesters of English Composition prior to any writing-intensive course, 2007-08 will therefore be the first academic year that any writing-intensive course is actually required. Course enrollments will not change as a consequence of their inclusion in the new core curriculum. Enough qualified faculty are currently employed to teach these courses, and the necessary physical plant already exists.

The Resource Working Group anticipates that the major-specific capstone experience will be satisfied by at least three teaching methods:

1. individual projects—i.e., one student researcher working with one faculty mentor;
2. small-group projects—i.e., two to four student researchers working with one faculty mentor; and
3. capstone courses—i.e., a seminar class in which students must complete one or more assigned projects either working individually or in a group.

In disciplines such as engineering, some projects may involve partnerships with outside agencies in industry, commerce, or government. As well, individual projects may be undertaken as VMI Summer Undergraduate Research Institute projects or as Independent Study/Senior Thesis/Senior Design Project courses during the regular academic year.

Implementation of the capstone experience requirement will begin during the 2007-08 academic year. However, given that the capstone experience is normally a senior-year activity, practical implementation will not be until the 2010-11 academic year. Currently, a majority of VMI's major-awarding departments either have a capstone experience in place or have advanced plans for one in the near future.

#### 4.5 Resources for Evaluation and Assessment

The assessment of individual learning outcomes and the overall evaluation of the QEP implementation process will involve significant effort, particularly in the collection and analysis of data. Given that baseline data on the current program will be collected during the 2006-07 academic year, the Resource Working Group has identified the immediate need for an additional analyst within the Office of Assessment and Institutional Research, to be funded at \$75,800 for 2007-08, and rising to \$88,675 by 2010-11.

The Office of Assessment and Institutional Research will also be allocated a recurring annual budget of \$20,000 for the purchase or license of assessment tools and/or the training of faculty in techniques of assessment and use of assessment tools in the core curriculum. This budget will be available during the 2006-07 academic year to fund the collection of baseline data from existing courses.

Table 6. Estimated VMI Core Curriculum Implementation Budget, 2006-2011

| <b>Core Curriculum Component</b> | <b>Faculty &amp; Staff</b> | <b>Physical Facilities</b> | <b>Course Development and Program Requirements</b> | <b>Row Totals</b> |
|----------------------------------|----------------------------|----------------------------|--|-------------------|
| Written Communication            | \$0                        | \$0                        | \$0  | \$0               |
| Oral Communication               | \$0                        | \$0                        | \$0  | \$0               |
| Scientific Analysis              | \$234,112                  | \$5,000                    | \$80,629   | \$319,741         |
| Mathematical Reasoning           | \$0                        | \$0                        | \$0  | \$0               |
| Physical Education               | \$0                        | \$0                        | \$10,000   | \$10,000          |
| Army ROTC                        | \$641,459                  | \$740,000                  | \$557,000  | \$1,938,459       |
| Navy/Marine ROTC                 | \$61,200                   | \$0                        | \$173,500  | \$234,700         |

|                           |                    |                  |                    |                    |
|---------------------------|--------------------|------------------|--------------------|--------------------|
| Air Force ROTC            | \$237,160          | \$0              | \$50,550           | \$287,710          |
| Leadership Course         | \$915,984          | \$0              | \$0                | \$915,984          |
| Success at VMI            | \$164,103          | \$0              | \$63,000           | \$227,103          |
| Success for Life          | \$126,319          | \$0              | \$17,000           | \$143,319          |
| World History             | \$0                | \$0              | \$0                | \$0                |
| Civilizations & Cultures  | \$0                | \$0              | \$27,989           | \$27,989           |
| Writing Intensive Courses | \$0                | \$0              | \$0                | \$0                |
| Capstone Experience       | \$0                | \$0              | \$0                | \$0                |
| Evaluation & Assessment   | \$410,557          | \$0              | \$100,000          | \$510,557          |
| <b>Column Totals</b>      | <b>\$2,790,894</b> | <b>\$745,000</b> | <b>\$1,079,668</b> | <b>\$4,615,562</b> |

## 5 SCHEDULE AND MAINTENANCE

The following schedule may be revised, as both resource and budget constraints may require adjustments to the QEP. Furthermore, given that no course can be added to the core curriculum until its assessment methodology is in place, assessment issues will drive the implementation schedule as well.

The schedule is discussed in three parts: evaluation and assessment; implementation; and post-implementation or continuation. The overall schedule is illustrated at the end of this section in Figure 4. In the following discussion and in Figure 4, courses are designated by groups according to the scheme outlined in Table 7:

Table 7. Grouping for Courses in the Core Curriculum Implementation Schedule

| Group | Description  | Representative Courses  |
|-------|--|---|
| I     | Existing courses that can be included in core curriculum with minor modification.  | English Composition, Public Speaking, Mathematics, Physical Education   |
| II    | Courses requiring substantial modification. Existing courses—Group II (existing)—may be implemented during the 2007-08 academic year, while new courses—Group II (new)—will likely not be implemented until the 2008-09 academic year. | Leadership, Success seminars, Cultures and Civilizations, World History |
| III   | New and existing courses included in the Integrative Experiences component of the core curriculum.   | Writing-intensive courses and capstone experiences                      |
| IV    | New and existing courses with significant resource implications.   | Biology, Chemistry, Physics, ROTC                                       |

### **5.1 Core Curriculum Evaluation and Assessment Schedule**

Evaluation of the core curriculum has been underway for some months while we have developed our concept of the new core curriculum and its goals. This evaluation, which will continue throughout the implementation phase, has been identified as a key element to the successful continuation of the core curriculum after implementation. Evaluation as an ongoing activity is shown in Figure 4 with its beginning predating publication of the QEP and continuing throughout the entire implementation process and then occurring as one of four activities afterwards.

Assessment of selected courses will occur prior to the implementation of any new core curriculum courses to establish a baseline from which to determine impact on student learning. This assessment process will begin during the Fall 2006 semester, when appropriate assessment tools will be identified or, if they are not otherwise available, developed. These tools will be used during the latter part of the Spring 2007 semester to perform baseline assessment. This will allow evaluation of assessment tools as well as evaluation of baseline data. Where appropriate, assessment tools will be modified. With assessment tools in place and a baseline established, assessment will begin during the Spring 2008 semester, following the implementation of Group I, Group II (existing), and Group III core curriculum courses, as shown in Figure 4, and continue as an ongoing activity thereafter.

### **5.2 Core Curriculum Implementation Schedule**

For Group I, Group II (existing), and Group III courses, sponsoring academic departments will develop course proposals, which the Core Curriculum Oversight Committee will evaluate. The Core Curriculum Oversight Committee may then approve a course, suggest revisions (after which the course may be approved), or reject a course. These activities will occur during the Fall 2006 semester. In the Spring 2007 semester, plans will be made for implementing these courses during 2007-08 academic year. These courses will be implemented first because they have been taught in similar forms previously.

For Group II (new) courses, key personnel will be recruited during the 2006-07 academic year, with course proposals developed, evaluated, and approved during the Fall 2007 semester.

Planning for implementation of the approved courses will occur during the Spring 2008 semester, with implementation to follow in the 2008-09 academic year.

Group IV courses will require phased implementation as resources become available. This is particularly true for the ROTC program, where the majority of financial resources for core curriculum implementation may be concentrated. Regardless of resource constraints, however, the process of developing, evaluating, and approving course proposals will begin in the Fall 2006 semester, and planning for implementation of Phase I courses will occur during the Spring 2007 semester. Phase I courses will include expanded offerings in Biology and, depending on resource needs, modifications to the ROTC program. Current plans call for implementation of these courses to begin during the 2007-08 academic year, as shown in Figure 4.

Phase II courses (stand-alone sciences) included in Group IV will be evaluated once the sequence courses are established. Phase II may also include incremental changes to ROTC courses, depending on the final configuration of these courses and their resource needs.

### **5.3 Core Curriculum Implementation and Maintenance**

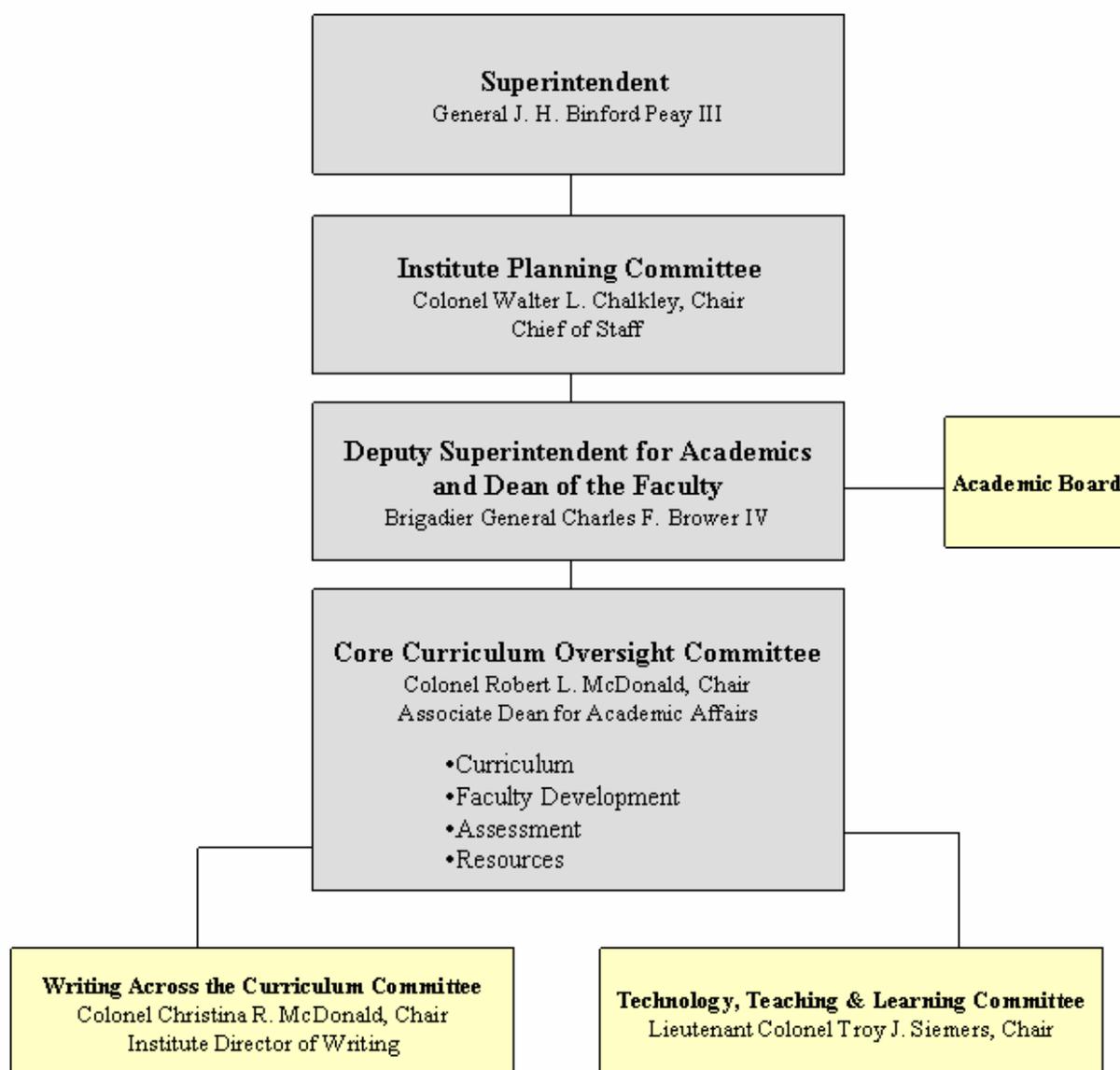
The Core Curriculum Oversight Committee, chaired by the Associate Dean for Academic Affairs, will report directly to the Deputy Superintendent for Academics and Dean of Faculty in all matters of implementing and maintaining the new core curriculum (see Figure 3). The committee is charged specifically “To establish learning outcome goals for the core curriculum; offer faculty development programming; facilitate course development; approve and monitor courses; and assess the core curriculum’s contributions to the Academic Program goals.” As described in section 2.5, the committee will convene on a regular schedule each academic year to

1. evaluate ongoing core curriculum activities;
2. review ongoing core curriculum assessment;
3. review new core curriculum course proposals; and
4. review core curriculum resource needs.

The dean will provide Academic Program resources and expertise in support of the core curriculum, including resource management and assessment, and will coordinate core curriculum requirements with the Institute Planning Committee and the Institute Assessment Committee in pursuit of institutional goals. The dean will also ensure that the Academic Board is apprised and

involved as appropriate in the administration of the core curriculum and that the Core Curriculum Oversight Committee is represented on the Institute Assessment Committee. The dean, his staff, and the faculty members of the Core Curriculum Oversight Committee have the expertise and the institutional support to establish the new core curriculum as a truly meaningful, integrated, common experience for all VMI cadets.

Figure 3. QEP Maintenance Leadership



## **6 CONCLUSION**

By focusing on the improvement of VMI's core curriculum, this Quality Enhancement Plan will serve as an academic cornerstone of Vision 2039, the Institute's strategic initiative to improve VMI's programs and infrastructure with a focus on cadet development. The QEP process has provided the vital spark necessary for this ambitious curricular revision. It has energized the VMI faculty in their design of the new core curriculum's components and learning outcomes, and has created a ready infrastructure for the implementation, assessment, and maintenance of this plan. In sum, VMI's new core curriculum is poised to play its key role in the four-year set of experiences that VMI has designed to develop in its graduates the essential characteristics and attributes of the educated citizen-soldier.

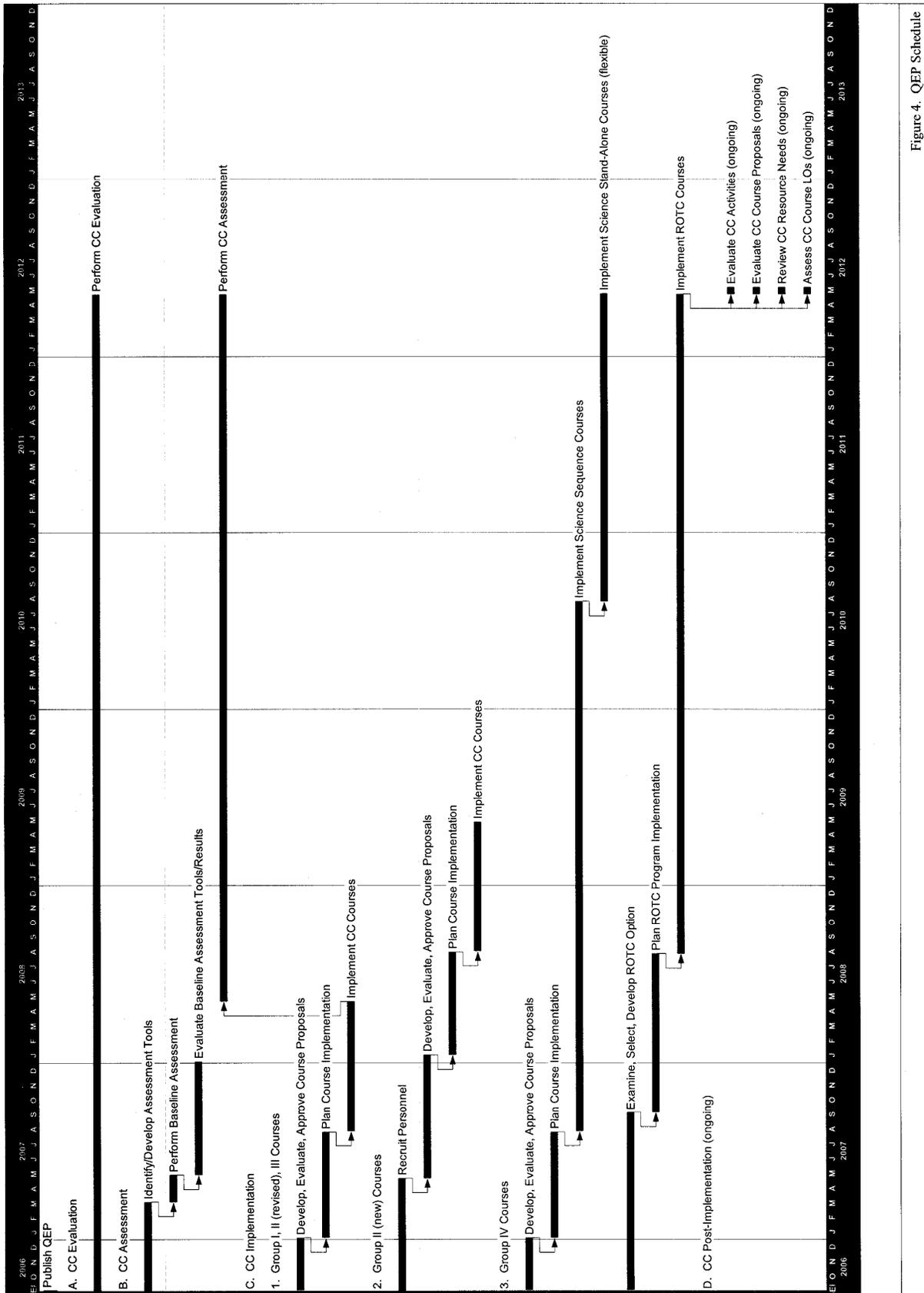


Figure 4. QEP Schedule

## Appendix 1: References

- Anson, C. "NCSU Campus Writing and Speaking Program, A National Leader in Cross-Curricular Innovation"(2000).  
[http://www2.chass.ncsu.edu/CWSP/docs/gpi/cwsp\\_gpi.pdf](http://www2.chass.ncsu.edu/CWSP/docs/gpi/cwsp_gpi.pdf).
- Barber, B.R. *A Passion for Democracy: American Essays*. Princeton UP (2005).  
*Being Fluent with Information Technology*. Committee on Information Technology Literacy, National Research Council (1999). <http://newton.nap.edu/books/030906399X/html/>.
- Candy, P. *Self-Direction for Lifelong Learning: A Comprehensive Guide to Theory and Practice*. Jossey-Bass (1991).
- The Case for Change: Report of the Commission on the University of the 21<sup>st</sup> Century*. Senate Document No. 18. Commonwealth of Virginia (1990).
- Curris, C. "Reflections on Higher Education and Citizenship Preparation" (2003).  
[http://www.aascu.org/programs/adp/toolkit0104/Reflections/Reflections\\_Curris.pdf](http://www.aascu.org/programs/adp/toolkit0104/Reflections/Reflections_Curris.pdf).
- Dewey, J. *Democracy and Education*. Free Press (1916; 1997).  
<http://www.ilt.columbia.edu/Publications/dewey.html>.
- Education for Global Leadership*. Committee for Economic Development (2006).  
[http://www.ced.org/docs/report/report\\_foreignlanguages.pdf](http://www.ced.org/docs/report/report_foreignlanguages.pdf)
- Fischer, G. "Lifelong Learning and Its Support with New Media." *International Encyclopedia of Social and Behavioral Sciences* (2001).
- Gaff, J.G. *General Education: The Changing Agenda*. Association of American Colleges and Universities (1999).
- Gardner, H. *Creating Minds: An Anatomy of Creativity Seen through the Lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi*. Basic Books (1993).
- Handbook for Reaffirmation of Accreditation*. Southern Association of Colleges and Schools, Commission on Colleges (2004).
- Healthy People 2010*. 2<sup>nd</sup> ed. U.S. Department of Health and Human Services (2000).  
[http://www.healthypeople.gov/document/html/uih/uih\\_bw/uih\\_2.htm](http://www.healthypeople.gov/document/html/uih/uih_bw/uih_2.htm).
- Hughes, R.L., R.C. Ginnett, and G.J. Curphy. *Leadership: Enhancing the Lessons of Experience*. 4<sup>th</sup> ed. McGraw-Hill (2002).

- Information Literacy Competency Standards for Higher Education*. American Library Association (2000). <http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>.
- Johnson, J.S., S. Shaman, and R. Zemsky. *Unfinished Design: The Humanities and Social Sciences in Undergraduate Engineering Education*. Association of American Colleges (1988).
- Jones, E.A., B.C. Dougherty, P. Fantaske, and S. Hoffman. *Identifying College Graduates' Essential Skills in Reading and Problem-Solving: Perspectives of Faculty, Employers and Policymakers*. U.S. Department of Education/OERI (1997).
- “Journey Towards Democracy: Power, Voice, and the Public Good.” Center for Liberal Education and Civic Engagement: Association of American Colleges and Universities (2005). [http://www.aacu.org/civic\\_engagement/overview.cfm](http://www.aacu.org/civic_engagement/overview.cfm).
- Leskes, A., and B.D. Wright. *The Art and Science of Assessing General Education Outcomes*. Association of American Colleges and Universities (2005).
- Lussier, R.N., and C.F. Achua. *Leadership: Theory, Application, Skill Development*. 3<sup>rd</sup> ed. Thomson/South-Western (2007).
- Macedo, S., ed. *Democracy at Risk: Toward a Political Science of Citizenship*. Brookings Institution Press (2005).
- Manning, G., and K. Curtis. *The Art of Leadership*. 2<sup>nd</sup> ed. McGraw-Hill (2007).
- Mathematical Association of America. *Undergraduate Programs and Courses in the Mathematical Sciences: CUPM Curriculum Guide 2004* (2004). <http://www.maa.org/cupm/cupm2004.pdf>.
- Meacham, J., and J.G. Graff. “Learning Goals in Mission Statements: Implications for Educational Leadership.” *Liberal Education* 92.1 (2006).
- “Message from the Director-General.” World Health Organization (2002). [http://www.who.int/whr/2002/message\\_from\\_the\\_director\\_general/en/print.html](http://www.who.int/whr/2002/message_from_the_director_general/en/print.html).
- Narsee, S. “Beyond a Shadow of a Doubt: Making a Case for Humanities and Social Sciences in Higher Education” (2001). <http://ultibase.rmit.edu.au/Articles/aug01/narsee1.htm>.
- National Council of Teachers of Mathematics. *National Science Education Standards* (1995). <http://www.nctm.org/>.

- NPEC Sourcebook on Assessment: Definitions and Assessment Methods for Communication, Leadership, Information Literacy, Quantitative Reasoning, and Quantitative Skills.* National Postsecondary Education Cooperative, U.S. Department of Education (2005).
- Nussbaum, M.C. *Cultivating Humanity: A Classical Defense of Reform in Liberal Education.* Harvard UP (1997).
- Organization of American Historians. *History, Democracy and Citizenship: The Debate over History's Role in Teaching Citizenship and Patriotism* (2004).  
<http://www.oah.org/reports/tradhist.html>.
- “Overview of SCHEV’s Reports on Institutional Effectiveness (ROIE).” State Council of Higher Education for Virginia (2006). <http://research.schev.edu/roie/?from=reportstats>.
- Pan, D. “Life-Long Learning and the Virtual University.” *CDTL Brief 8.5* [Centre for Development of Teaching and Learning, National University of Singapore] (2005).  
<http://www.cdtl.nus.edu.sg/brief/V8n5/default.htm>.
- “Physical Inactivity a Leading Cause of Disease and Disability Warns WHO.” World Health Organization (2002).  
<http://www.who.int/mediacentre/news/releases/release23/en/index.html>.
- Presidential Committee on Information Literacy: Final Report.* American Library Association (1989). <http://www.ala.org/ala/acrl/acrlpubs/whitepapers/presidential.htm>.
- Roach, C.E., and O. Behling. “Functionalism: Basis for an Alternate Approach to the Study of Leadership.” In J.G. Hunt et al., *Leaders and Managers: International Perspectives on Managerial Behavior and Leadership.* Pergamon (1984).
- Rhoads, R.A. “How Civic Engagement Is Reframing Liberal Education.” *Peer Review* (2003).  
<http://www.aacu-edu.org/peerreview/pr-sp03/index.cfm>.
- Sternberg, R.J. *Metaphors of the Mind: Conceptions of the Nature of Intelligence.* Cambridge University Press (1995).
- Stearns, P.N. “Why Study History?” American Historical Association (1998).  
<http://www.historians.org/pubs/Free/WhyStudyHistory.htm>.
- Strong Foundations: Twelve Principles for Effective General Education Programs.* Association of American Colleges (1994).

*Taking Responsibility for the Quality of the Baccalaureate Degree: A Report from the Greater Expectations Project on Accreditation and Assessment.* Association of American Colleges and Universities (2004).

Thomas, N.L. "Community Perceptions: What Higher Education Can Learn by Listening to Communities." Program for Democratic Values and Practices (1998).

[http://www.svhe.pdx.edu/cep/resources\\_conf\\_hud.html#\\_ftnref8](http://www.svhe.pdx.edu/cep/resources_conf_hud.html#_ftnref8).

*Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology.*

Center for Science, Mathematics, and Engineering Education: National Academy of Science (1999). <http://fermat.nap.edu/books/0309062942/html/index.html>.

"WPA Outcomes Statement for First-Year Composition." *WPA: Writing Program*

*Administration* (1999). <http://www.wpacouncil.org/positions/outcomes.html>.

## **Appendix 2: Common Goals for General Education Courses at VMI (1998)**

When the VMI Core Curriculum was last reviewed, the result was this statement of purpose, which was included for several years (1998-2001) on the syllabi of required first-year courses in English, History, Chemistry, and Mathematics:

The work of the fourth-class [i.e., freshman] year is designed to help the student master the fundamental tools for learning: language (needed for learning in all the disciplines, but especially in the humanities and social sciences) and mathematics (the tool most needed for learning in the scientific and technical disciplines). The use of these tools during the first year at VMI will lay the foundation for proficiency in such areas as:

1. Critical thinking and reading
2. Precision in written and oral communication
3. Academic and professional ethics
4. Commitment to lifelong learning and physical health

Attainment of these four objectives not only should help the student see the interconnections among the various academic disciplines but also should lead him or her to an expertise in the major field of study.

### Appendix 3: QEP Development Timeline

|                |  |
|----------------|--|
| April 2004     | Academic Program Focus Group constituted   |
| August 2004    | Academic Program Focus Group Report complete<br>Superintendent's endorsement of recommendation for review of core curriculum   |
| January 2005   | Core Curriculum Review Committee charge published<br>Committee meetings commence, with periodic informational reports to Dean  |
| May 2005       | First full draft of Core Curriculum Statement completed<br>Briefing to obtain Dean's endorsement of the committee's approach<br>Committee meetings to discuss suggestions/comments received  |
| June 2005      | Draft of Core Curriculum Statement presented for discussion by the Academic Board<br>Briefing to obtain Superintendent's endorsement of committee's approach<br>Committee meetings to discuss comments/suggestions received  |
| August 2005    | Draft of Core Curriculum Statement presented for review by Board of Visitors<br>Academic Affairs Committee<br>Draft presented for discussion/commentary by Academic Board<br>Briefing to obtain additional guidance from Superintendent<br>Committee meetings to discuss suggestions/comments received |
| September 2005 | Draft of Core Curriculum Statement presented for discussion in faculty forum<br>(September 22)<br>Committee meetings to discuss suggestions/comments received<br>Sub-committee formed to study and describe resource implications<br>Draft presented for discussion by the Academic Board              |
| October 2005   | Draft of Core Curriculum Statement presented for discussion in second faculty forum<br>(October 11)<br>Committee meetings to discuss suggestions/comments received<br>Sub-committee report on resource implications<br>Draft presented for first formal vote by the Academic Board                     |
| November 2005  | Meetings as necessary to address comments from the Academic Board meeting<br>Core Curriculum Statement approved by Academic Board (November 30)<br>Proposal presented for endorsement by Superintendent  |
| December 2005  | Dean of Faculty presents to assembled faculty plans for QEP (December 19)  |
| January 2006   | First meeting of QEP Oversight Committee (January 12)  |
| February 2006  | Proposal presented for approval of the Board of Visitors<br>Begin plans for implementation in academic year 2007-2008  |
| March 2006     | First meeting of Assessment Working Group (March 2)<br>Core Curriculum Statement endorsed by Superintendent (March 6)<br>First meeting of Resources Working Groups (March 30)  |

- May 2006      Report from the QEP Steering Committee presented for discussion in faculty forum  
                    (May 1)  
                    Core Curriculum Learning Outcomes approved by Academic Board (May 8)
- June 2006      QEP leadership meets with Superintendent to discuss unsettled issues (June 6)  
                    First full draft of QEP report completed
- July 2006      Revised draft of QEP report distributed to all faculty
- August 2006    Final faculty forum to review draft of QEP report (August 22)  
                    Final review and endorsement of QEP report by Academic Board (August 30)

## Appendix 4:

### The VMI Core Curriculum: The Nucleus of Effective Citizenship and Leadership

*[Note: This document was approved by VMI's Academic Board on 30 November 2005 and then approved by its superintendent, J. H. Binford Peay III, on 6 March 2006.]*

The VMI Core Curriculum is a common and mutually reinforcing set of courses and experiences designed to cultivate the essential characteristics of the citizen-soldier—a person of character who is able to anticipate, respond, and lead in a complex and changing world.

Through required courses and carefully managed elective opportunities, cadets develop *habits of mind* (learning to read, think, inquire, and communicate effectively) and *habits of living* (committing themselves to ethical behavior and lifelong learning and wellness). This nucleus of experience enables their development as students and prepares them to become strong contributors to their communities, their professions, and the nation following graduation.

The Core Curriculum is integrated across all four years of the cadetship, providing knowledge and experiences that expand, inform, and facilitate cadets' specialized study in the major discipline of their choice. Complemented by a variety of experiences in the VMI co-curriculum, the Core Curriculum contributes specifically to the academic preparation of 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;*
- *The ability to influence human behavior to accomplish organizational goals, recognizing moral issues and applying ethical considerations in decision-making;*
- *The ability to communicate effectively, both orally and in writing;*
- *The ability to design and conduct scientific experiments as well as analyze and interpret data;*
- *The ability to understand and apply mathematical sciences to solve quantitative problems;*
- *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;*
- *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;*

- *The confidence to use technology and experiment with technological solutions to problems;*
- *Intellectual curiosity and a commitment to lifelong learning;*
- *A lifetime commitment to physical fitness and wellness; and*
- *A commitment to public service.*

The VMI Core Curriculum (CC) is thus organized into four components:

- A. Key Competencies
- B. Foundations of Citizenship and Leadership
- C. Perspectives on Civilization and Human Achievement
- D. Integrative Experiences

All courses in the Core are approved and monitored by an oversight committee appointed by the Deputy Superintendent for Academics and Dean of the Faculty. Courses are taught with an explicit effort to stimulate cadets' intellectual curiosity and awareness of why these requirements have been established as the core academic contribution to the Institute's mission to develop citizen-soldiers.

### **A. Key Competencies: 25 hours**

This component of the Core develops in each cadet a base of skills and knowledge necessary for success in college courses and in life after graduation: effective communication, analytical and creative thinking, and a commitment to health and wellness.

#### **1. Written Communication (6 hours)**

*Principles of Rhetoric*: stressing awareness of audience, occasion, and purpose in effective use of the written word: EN 101, EN 102 – both completed with grade of C or better.

#### **2. Oral Communication (1 hour)**

*Public Speaking*: reinforcing awareness of audience, occasion, and purpose in effective use of the spoken word: SE 300.

#### **3. Scientific Analysis (8 hours)**

*Two CC-designated laboratory courses in the natural sciences*: emphasizing scientific modes of thinking and problem-solving: BI, CH, or PY. The major department may require a cadet to take two, stand-alone courses in two natural sciences or two sequential courses in one of the natural sciences. If the major department does not specify, the cadet may select either option.

#### **4. Mathematical Reasoning (6 hours)**

*Two CC-designated sequential courses in mathematics:* developing the ability to understand and apply mathematical sciences to solve quantitative problems. The major department may require a particular sequence of courses for this requirement.

### 5. Physical Education (4 hours)

*Seven semesters of physical education:* beginning second semester of the 4<sup>th</sup> class year, totaling 4 semester credit hours (exclusive of PE 430, an elective):

|                          | 4 <sup>th</sup> class year              | 3 <sup>rd</sup> class year              | 2 <sup>nd</sup> class year            | 1 <sup>st</sup> class year        |
|--------------------------|---|---|---------------------------------------|-----------------------------------|
| 1 <sup>st</sup> Semester | No Course Requirement                   | Boxing PE 102 or Swimming PE 100 or 101 | Principles PE 300 or Wrestling PE 211 | Drug & Alcohol PE 200 or Elective |
| 2 <sup>nd</sup> Semester | Boxing PE 102 or Swimming PE 100 or 101 | Principles PE 300 or Wrestling PE 211   | Drug & Alcohol PE 200 or Elective     | Elective                          |

All courses in the above matrix are ½ credit, meeting one time per week, with the exception of PE 300 (Principles of Physical Conditioning), a one credit course that meets twice per week. Each course has a physical fitness component, measured by a physical fitness test, that constitutes 25 percent of the final grade.

### **B. Foundations of Citizenship and Leadership: 15 hours**

This component of the Core provides classroom and practical experience with the rights and responsibilities of citizenship in a democratic society and prepares cadets for effective leadership and service to the nation, whether in the military or in another profession of their choice. It also equips them for personal success in the community of the Corps of Cadets and in their early life after graduation.

#### 1. ROTC (12 hours)

The progressive combination of eight courses of any Service ROTC to include associated leadership laboratories when offered, emphasizing foundational background and practical leadership experiences in preparation for commissioned service in our Armed Forces: AS, MS, NS. [*The Dean and Professors of Military, Naval, and Aerospace Studies are exploring the feasibility of a schedule that would leave all cadets in common ROTC lecture and laboratory courses until the Spring FTX of the First Class year, after which commissioning cadets would remain in the laboratory and non-commissioning cadets would participate in programming sponsored by the Office of Career Services and/or the coordinator of the “Success” seminars.*]

#### 2. Leadership (3 hours)

An interdisciplinary study of leadership in an organizational context focusing on the integration of theory and practice, taught by faculty with formal academic

training and experience in leadership studies and affiliated disciplines. Cadets study the leader's direct influence on individual motivation and group processes through the application of leadership theories, skills, and attributes. They also learn how to influence subordinates indirectly through organizational systems and procedures, organizational culture, and ethical climate. The course will be structured around opportunities for cadets to reflect upon and apply the knowledge gained in the classroom to their experiences as leaders (and followers) in the Corps of Cadets and in the various ROTC curricula.

**3. Success at VMI Seminars (0 hours; pass/fail)**

A two-semester series of workshops led by selected upper-class cadet mentors, supervised by the faculty "Success" seminars coordinator, to acquaint Fourth Classmen with the skills and attitudes necessary to make the most of the academic and co-curricular opportunities they will find at VMI. Through informational and exploratory discussion sessions, Fourth Classmen will develop a written personal plan for succeeding at VMI. Seminars will be scheduled using a combination of available Dean's and Commandant's times.

**4. Success for Life Seminars (0 hours; pass/fail)**

A two-semester series of seminars focused on preparing second-semester Second Classmen and first-semester First Classmen for issues that they will confront during their First Class year and in life after graduation, including topics related to personal conduct, job searches, financial planning, and opportunities for civic service and leadership. The program will bring the entire class together for presentations, including some by outside speakers, which will be followed by small-group discussions led by selected faculty and staff. (Commissioning-track cadets may be excused from certain sessions, such as those regarding the civilian job search.)

**C. Perspectives on Civilization and Human Achievement: 12 hours**

This component of the Core encourages cadets to contemplate and think critically about major challenges, accomplishments, and errors of humanity on a global scale. The goal is to cultivate and energize cadets' capacity for self-examination through analysis of the products of civilization.

**1. World History (6 hours)**

Two courses designed to introduce students to the history of humanity and human endeavor on a global scale by focusing on patterns of development in the major cultures and civilizations of the world. The courses are thematically organized and include presentation of case studies showing, historically and cross-culturally, how societies organize themselves to meet human needs and solve problems, including those of leadership. [Note: We envision a re-designed version of HI 103-104 to satisfy this requirement.]

**2. Civilizations and Cultures (6 hours)**

Two CC-designated courses, taught in any academic department, that are designed primarily to investigate and develop an understanding and appreciation for cultures and their products and traditions. One of these required courses may be replaced by a credit-bearing, Institute-approved Study Abroad experience.

**D. Integrative Experiences: variable hours**

This component of the Core ensures the ability to integrate and apply key competencies and discipline-specific knowledge developed through the Core and the major curricula.

**1. Writing-Intensive Courses (variable hours)**

Two designated W courses numbered 200 or higher, at least one of which must be in the cadet's major, taken after the completion of EN 102 with a grade of C or better. The goal is to demonstrate the ability to use writing as a means of learning and communicating in a specific discipline.

**2. Capstone Experience (variable hours/no credit/course-embedded experience)**

As a culminating experience and a demonstration of intellectual curiosity and a creative approach to problem-solving in the major, each cadet will design and complete a project that demonstrates his or her ability to integrate and apply particular knowledge, skills, and experiences developed in both the Core and major curricula. Criteria for qualifying capstone experiences will be established departmentally.

## Appendix 5: Core Curriculum Course Proposal Form

### The VMI Core Curriculum: The Nucleus of Citizenship and Leadership

#### Core Curriculum Course Proposal

The VMI Core Curriculum is a common and mutually reinforcing set of courses and experiences designed to cultivate the essential characteristics of the citizen-soldier—a person of character who is able to anticipate, respond, and lead in a complex and changing world.

Through required courses and carefully managed elective opportunities, students develop *habits of mind* (learning to read, think, inquire, and communicate effectively) and *habits of living* (committing themselves to ethical behavior and lifelong learning and wellness). This nucleus of experience enables their development as students and prepares them to become strong contributors to their communities, their professions, and the nation following graduation.

This proposal form is designed to elicit information that will help the Core Curriculum Oversight Committee understand how the course you are proposing will enable students to realize the learning outcomes the Core is intended to develop (Table 1).

Details about the Core and criteria used in proposal review are provided in the [VMI Core Curriculum Implementation Plan](#), available on the Dean’s website. If you have questions as you complete the form, please contact any member of the Core Curriculum Oversight Committee ([link to committee list](#)).

\* \* \* \* \*

#### **A. Course Information**

1. Department: \_\_\_\_\_

2. Course Number: \_\_\_\_\_ 3. Credit Hours \_\_\_\_\_

4. Full Course Title: \_\_\_\_\_

5. Course Description (*as it will appear on the syllabus*):

6. Prerequisite(s) \_\_\_\_\_

7. Indicate whether this is

- A new course  
 An existing course with less than 75% content revision  
 An existing course with greater than 75% content revision

8. When do you expect to offer the course first? \_\_\_\_\_  
 And on what schedule thereafter? \_\_\_\_\_

9. Expected enrollment per section: \_\_\_\_\_

10. Provide the following information for each faculty member who will teach the course.  
 (Department heads may update this list as needed.)

- a. Faculty member's name
- b. Status (part-time or full-time)
- c. SACS qualifications to teach this course? (See [[link](#)] for requirements.)

11. Resources (existing or new) required to offer the course for the Core Curriculum:

### **B. Core Curriculum Contributions**

1. Check the primary Core Curriculum Component for which the approval for the course is proposed. A course may be proposed for only one category, *except Civilizations and Cultures and Capstone courses, which may also qualify for the Writing-Intensive designation.*

#### **Key Competencies**

- Written Communication  
 Oral Communication  
 Scientific Analysis  
 Mathematical Reasoning  
 Physical Education

#### **Foundations of Citizenship and Leadership**

- ROTC  
 Leadership  
 Success at VMI seminar  
 Success in Life seminar

#### **Perspectives on Civilization and Human Achievement**

- World History  
 Civilizations and Cultures (see section E)

#### **Integrative Experiences**

- Writing-Intensive Courses (see section E)  
 Capstone Experiences (see section E)

2. Indicate any meta-competencies that the proposed course will address. (For specific intended learning outcomes in these areas, see Table 1.)

- Critical and Creative Thinking (CCT)
- Written and Oral Communication (COM)
- Technological Competence (TEC)
- Lifelong Learning (LLL)

### **C. Syllabus**

Attach a complete course syllabus, including an outline of topics, texts, readings, and assignments.

In addition to the other requirements established in the Academic Regulations, every core curriculum course syllabus must also include a listing of the specific intended learning outcomes the course is designed to develop. These outcomes may be incorporated in a section with other course goals, but they must be expressed in the *exact language* approved by the Academic Board and must be readily discernable as primary objectives for the course (Tables 1 and 2).

When possible, attach sample assignments.

### **D. Discussion**

Please attach narrative responses to the following questions.

1. Briefly describe how the department views the contribution of the course to the overall goal of the Core Curriculum.
2. Briefly describe how the course will address each of the intended learning outcomes required by the core curriculum component for which approval is sought. (See Table 2)
3. Briefly describe how the course will address any of the meta-competencies identified in B.2.
4. Describe the plan for assessing the outcomes identified in D.2 and, when appropriate, D.3. (This plan should be developed in close consultation with the Office of Assessment and Institutional Research.)
5. Core curriculum courses must be taught with an explicit effort to stimulate students' intellectual curiosity and awareness of why these requirements have been established as the core academic contribution to the Institute's mission to develop citizen-soldiers. The Core Curriculum Oversight Committee therefore encourages instruction that promotes

active, engaged learning (see, e.g., <http://www.aacu.org/peerreview/pr-wi05/pr-wi05feature1.cfm> or [http://www.cte.usf.edu/bibs/active\\_learn/intro.html](http://www.cte.usf.edu/bibs/active_learn/intro.html)). Describe how the pedagogy for this course addresses the issue of relevance and routinely engages students as active learners.

6. If this is a multi-section course, what faculty development plans does the department have for ensuring consistency and effectiveness across the various sections? Please note any resource requirements for faculty development in A.11.

### **E. Component-Specific Requirements:**

The following core curriculum components require particular design elements or curricular features. Please provide any additional documentation as requested.

#### **1. Scientific Analysis**

In addition to satisfying the other criteria for core curriculum courses, all courses proposed to fulfill the scientific analysis requirement must:

- a. Merge lecture and laboratory experiences into one course offering 4 hours of credit per semester.
- b. Integrate an inquiry-based component in the laboratory and lecture portions of both sequences and stand-alone offerings. The Core Curriculum Oversight Committee encourages scientific instruction that promotes active learning (see, e.g., <http://www.aacu.org/peerreview/pr-wi05/pr-wi05practice.cfm> <http://www.coe.uga.edu/epltt/ProblemBasedInstruct.htm> or [http://www.cte.usf.edu/bibs/active\\_learn/science/bib\\_science.html](http://www.cte.usf.edu/bibs/active_learn/science/bib_science.html)).

The course syllabus should reflect these requirements.

#### **2. Writing-Intensive (W-I) Courses**

In addition to satisfying the other criteria for core curriculum courses, all writing-intensive courses must:

- a. be numbered 200 or above;
- b. require substantially more writing than a non-W-I section of the same course, with a minimum of 10 pages of carefully revised writing submitted for grade; and
- c. provide substantial guidance in techniques of revision.

Please provide this additional information about the proposed writing-intensive course:

1. Types of Assignments. Describe the kinds of writing assignments that will be required, providing the following information for each:
  - a. type of assignment
  - b. number of such assignments
  - c. whether the writing will take place in- or out-of-class, or both
  - d. approximate number of pages for each assignment (one “page” = 250 words)
  - e. whether or not the assignment will be revised in response to the professor’s comments.
  
2. Instruction in Revision. Explain generally how instruction in techniques of revision will be handled in the course.
  
3. Course Grades. If not provided on the syllabus required in section C, provide a percentage breakdown of the relative weight that each major element will be given in determining the final grade for the course. Most important for this proposal are the percentages determined by written materials, *excluding* essay exams (since they are not typically revised).
  
4. Assessment. To ensure consistency with other assessment reporting requirements, assessment of the writing component of W-I courses must be developed in close consultation with the Institute Director of Writing and the Office of Assessment and Institutional Research.

### 3. Capstone Experience

1. Rationale. This component of the Core Curriculum insures the ability to integrate and apply, as appropriate for the discipline, key competencies and discipline-specific knowledge developed through the Core and major curriculum.
  
2. General Description of the Capstone Experience. Each cadet or group of cadets will design and complete a capstone project that demonstrates his or her ability to solve challenging problems in the major creatively by applying, as appropriate for the discipline, knowledge, skills, and experiences developed both in the Core Curriculum and in his or her major curriculum. Departments will establish the specific criteria for these culminating experiences for their majors.
  
3. Criteria for Approval of Department Capstone Experiences by the Core Curriculum Oversight Committee.
  - a. Capstone Experiences must satisfy the following general criteria:
    - i. Each cadet or group of cadets must design and successfully complete a rigorous, culminating project that demonstrates, as appropriate for his or her discipline, the ability to integrate and apply knowledge, skills, and experiences developed in both the Core Curriculum and his or her major curriculum.

- ii. Each cadet or group of cadets must make both an oral and written presentation of the conclusion of this work at one or more of the following:
    - Summer Undergraduate Research Initiative
    - Undergraduate Research Symposium
    - departmental symposium
    - class meetings
    - professional meeting
  - iii. The written component of the Capstone Experience must include either an individual or group thesis or portfolio that begins with the creation of a project proposal. Cadets also will complete a common reflective writing assignment in which they analyze their intellectual development throughout the capstone experience and discuss the impact of the experience on their plans for further learning (see item b. 2 below for guidance).
  - iv. All Capstone Experiences will be designated as writing intensive and must follow the WI guidelines approved by the Core Curriculum Oversight Committee (see item b, 3) below.
  - v. Beginning with the matriculating class of 2010, the satisfactory completion of the Capstone Experience will be a requirement for graduation.
- b. Capstone courses must support and build upon the following core curriculum learning outcomes which will be demonstrated in the course application submitted for Core Curriculum Oversight Committee approval:
- i. Creative and Creative Thinking learning outcomes #1-11:
    1. Detect inconsistencies and common mistakes in reasoning within a discipline-specific framework.
    2. Explain the logical connections between the core ideas of an argument or concept.
    3. Solve problems systematically.
    4. Evaluate evidence and establish causal relations between facts.
    5. Identify counterfactuals within the context of a specific argument.
    6. Distinguish among facts, inferences, and opinion by using specific and discreet examples.
    7. Obtain relevant sources of information to solve problems (and distinguish between relevant and irrelevant sources).
    8. Identify and integrate conflicting or ambiguous points of view or evidence and learn to make judgments on the basis of that analysis.

9. Recognize and work productively on projects that are open-ended or ill-defined.
  10. Develop strategies to synthesize and transfer learning from one discipline to another.
  11. Formulate original connections and relationships across a broad range of new ideas.
- ii. Lifelong Learning learning outcomes #1-4:
1. Reflect on their learning processes, including making realistic assessments of their abilities and comprehension of subjects.
  2. Recognize when additional information or expertise is necessary.
  3. Function as self-directed learners.
  4. Engage in a program of independent reading to gain new knowledge.
4. Institutional Resources.
- a. Faculty compensation. Presently, not all departments have developed a capstone experience for their major, and those that have may not completely satisfy the new core curriculum requirements. Before the Capstone Experience can be implemented in the core curriculum, every department must have a capstone experience that meets requirements consistent with the core curriculum. Faculty supervising capstone research projects (either individual projects or group projects) may require release time against their normal teaching loads. For example, supervising one project might equal one credit hour of classroom teaching, so that supervising three capstone projects would qualify for release from teaching one three-hour course. The obvious consequence of this would be a requirement for additional faculty (full-time or part-time) to cover a department's teaching load. It might be difficult to make such a case for faculty in departments where there is a 3-3 or 3-4 teaching load, but for those faculty with a 4-4 load, incentive may be needed if they are to take on capstone research projects.
- Each department will have to evaluate their own needs and either adjust internally or request external funding in the below areas:
- release time
  - remuneration
  - new hires or part-time assistance
- b. Other resources. For some departments offering capstone research projects, it is likely that projects will require additional expenditures for equipment and materials. Obvious examples would be projects in chemistry, biology, physics, and engineering, but there may well be others. Thus, there may be additional budgetary requirements.

5. Supporting Literature.

a. Truman State University

<http://assessment.truman.edu/almanac/2003/CH12.pdf>

b. Agnes Scott College

<http://ctl.agnesscott.edu/resources/CapstoneCoursesMaterials.htm>

c. Rhodes State College

<http://www.rhodesstate.edu/applications/e-portfolio/capfaq.asp>

d. Portland State University

[http://www.pdx.edu/unst/capstone\\_courses.html](http://www.pdx.edu/unst/capstone_courses.html)

e. University of Kentucky

<http://www.uky.edu/Assessment/mcap.shtml>

f. Montana State

<http://www.montana.edu/aircj/assess/CapstoneCourses.html>

g. University of Nevada, Reno

[http://www.unr.edu/core\\_curriculum/faculty/forfacultycapstoneguidelines.html](http://www.unr.edu/core_curriculum/faculty/forfacultycapstoneguidelines.html)

h. Skidmore

[http://www.skidmore.edu/administration/assessment/H\\_Capstone\\_courses1.htm](http://www.skidmore.edu/administration/assessment/H_Capstone_courses1.htm)

i. Elizabethtown College

<http://users.etown.edu/m/moorerc/capstone.html>

Submitted by:

\_\_\_\_\_ date \_\_\_\_\_  
 Course Coordinator (if appropriate)

\_\_\_\_\_ date \_\_\_\_\_