

DEVELOPING A CORE CURRICULUM FOR THE 21ST CENTURY

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ABSTRACT

On May 4, 2000, the Faculty of the University of Vermont College of Agriculture and Life Sciences (CALs) made history by adopting a new core curriculum effective in the fall semester of 2001. This core curriculum—based on knowledge, skills, and values competencies—represents a dramatic change from the old system of distribution requirements and should open up opportunities for student recruitment and retention, new teaching initiatives, and expanded career possibilities for graduates. This article details the development of the core curriculum and the process that led to its acceptance by CALs faculty.

INTRODUCTION

There is an old saying that it's easier to move a graveyard than it is to change a college curriculum. The difficulty of completely revamping a college curriculum has been frequently reported in the literature (Barr and Tagg, 1995; Spreckler and Rudd, 1997; Magner, 2000). Curriculum reform across an entire college of agriculture is uncommon (Comer et al., 1996), since most curriculum changes are incremental and affect only courses in a single department (e.g., Kitto et al., 1996).

In spite of the difficulties of curriculum reform, a group of faculty in the College of Agriculture and Life Sciences (CALs) at the University of Vermont (UVM) tackled this issue because we felt many students were lacking skills in critical thinking, communication, teamwork, and complex problem solving. These are the same competencies that Fortune 500 companies have reported as most important for success in today's workplace (Ryan, 1999). Student deficiencies in these critical skills have been repeatedly identified in the literature (e.g., Jenkinson, 1994; Kitto et al., 1996; Andelt et al., 1997; Schmidt, 1999).

We also felt it was important for students to be exposed to values that reflected the ethos of the State of Vermont, and the missions of the University of Vermont and the College of Agriculture and Life Sciences. These values

included environmental stewardship, citizenship, social responsibility, and personal growth. We added values to the core curriculum for a number of reasons:

Vermont prides itself as an environmentally conscious state. (Environmental Studies is one of the largest undergraduate majors at the University.)

UVM has recently adopted a set of moral values and principles entitled "Our Common Ground" to guide the University community.

Many of our students' behaviors, in and out of the classroom, suggest that their values have not reached the final stages of development. This is the time in a traditional-aged student's life when lifetime values are shaped (Kohlberg, 1981).

Developing a set of explicit values for our college would give faculty members a unique opportunity to clarify their own collective values.

And finally, there is a growing interest in teaching values in higher education (Carr, 2000; Schwartz, 2000).

The path to adopting a core curriculum based on competencies has taken us approximately five years. We describe the development of our conceptual framework, and the successes and failures along the path that led to the CALs faculty acceptance of the new curriculum.

The Need for Change: CALs and the History of Distribution Requirements

The University of Vermont's four schools and five colleges operate with a great deal of autonomy and decentralization. To receive a degree from one of UVM's colleges or schools, a student must complete a basic set of required courses or distribution requirements in addition to the course work required of the major. With little central University coordination or direction, the faculty of each school or college are free to develop their own mix of distribution requirements.

In researching old University of Vermont catalogues, we found that the first time distribution requirements are mentioned for the College of Agriculture (as it was called then) was in the 1960 edition. Whereas there have been additions to the CALs distribution requirements

¹We acknowledge the helpful review of this article by our colleagues Meg Ashman, Dr. David Barrington, and Susan Patterson

(most notably a computer course requirement in 1985), the distribution requirements have remained basically unchanged for almost forty years.

The Process

In September 1994 the CALS Dean convened an ad hoc committee of faculty members to review the distribution requirements and make recommendations for change. The committee met for nine months and issued a report, recommending the addition of two courses to the distribution requirements—one in critical thinking and another in technical writing. The report was given to the Dean and received little attention. The ad hoc committee was disbanded and the issue disappeared until taken up again in 1996 by the CALS Curriculum Committee—a standing committee of the College that reviews all major curriculum changes and brings them before the entire faculty for approval.

In the fall of 1996 the CALS Curriculum Committee decided to explore the current distribution requirements by asking the simple question, “why do we have them?” Surprisingly, no easy answers were forthcoming. The distribution requirements, as detailed in the University Catalogue, were a list of required course topics *with no justification or explanation of why they were required*. As a consequence, when advisors were asked by students why a certain course topic was part of the distribution requirements, there was no standardized response. In addition, substitution of courses to meet requirements was at the sole discretion of advisors who were not necessarily operating with the same philosophical or theoretical underpinnings. Without a justification, the distribution requirements were wide open for individual advisor interpretation.

The Curriculum Committee then began to challenge the current paradigm of course distribution by developing a new model for a core curriculum based on students having demonstrated accomplishment of competencies either through coursework or other assessment. This competency-based model was further refined through discussion and debate to focus on three areas: knowledge, skills, and values. The underlying premise of the framework was that students should acquire a set of knowledge, skills, and values to function effectively in society, in addition to the course work and experiences relevant to their chosen fields of specialization. This proposition and core curriculum framework was brought before the faculty at a retreat in September 1997.

After a brief presentation by the Curriculum Committee, faculty were divided into groups that were

facilitated by Curriculum Committee members to discuss the framework and report back to the larger group. The knowledge, skills, and values framework received favorable reviews from faculty, and the motion to adopt and move the core curriculum forward to the implementation phase was approved.

An ad hoc core curriculum committee was born out of this event and began meeting in the fall of 1997. This committee gathered information through inquiry into curricula at other colleges and universities, and discussion with consultants hired by the University, and slowly began to fill out the core curriculum details and a plan for implementation. In addition, a set of principles was developed to help focus the committee’s work.

Initial Guiding Principles

The following principles were crafted to align the work of the committee with the history and political climate of the college, thus providing an acceptable core curriculum framework for faculty who would be voting on the next step toward implementation.

1. Students should complete a core set of courses and/or experiences intended to yield a defined array of knowledge, skills, and values.
2. Completion of a course or series of courses (approved by the advisor) is assumed to satisfy the competency. In other words, specific courses would be matched to specific competencies.
3. The core curriculum will replace the present distribution requirements.
4. Where possible, the design will include sequences of courses yielding an integrated experience, with advanced courses building on earlier ones.
5. The student’s department and advisor serve as the ultimate judges regarding decisions of the appropriate selection of courses and non-course experiences.

Core Curriculum

The goal of the committee was to have students graduate from CALS having completed a series of courses that constituted a “core curriculum.” The core curriculum was envisioned as a set of knowledge, skills, and values deemed essential to the functioning of an educated citizen of the world. Knowledge was defined as the principal areas of human intellectual achievement that serve as the basis

for functioning in society and lifelong learning. Skills were characterized as the capacity to effectively communicate, analyze, problem solve, think critically, and work with others. Values were defined as providing a sense of appreciation, respect, and sensitivity necessary to functioning in the complex modern world. (See Appendix A).

Setbacks and Success

A motion to adopt the new core curriculum was presented to the faculty in a May 1999 meeting where our biggest setback came when faculty sent the proposal back to committee "...with the goal of assessing the feasibility of the proposed core curriculum..." During the discussion, faculty expressed concern with four aspects of the proposed core curriculum:

1. The new core is simply a repackaging of the existing distribution requirements.
2. There is no room in the major requirements for additional courses.
3. Allowing students to "demonstrate competency" through means other than coursework gives them more room to "weasel out of" requirements.
4. The new core will increase workload of advisors.

In the fall of 1999 the committee membership was expanded, giving fuller representation to the various programs and majors in the college. In addition, a new Dean of the College, who was enthusiastic about the work of the committee, had been appointed from the ranks of the department chairs.

The following steps and actions were taken during the next nine months to prepare for another faculty vote in May 2000:

- a. Frequent and consistent communication among committee members was facilitated by an e-mail list.
- b. Two modifications were made to the guiding principles that shaped the committee's work and provided a background for the core curriculum. It was made explicit that Departments were given the final authority to determine how their curricula would meet the competencies, and that the core curriculum would be treated as a "dynamic model, subject to an ongoing evaluation process to assess efficacy and alignment with the College mission."

c. The idea of students demonstrating competencies through non-course experiences was dropped, leaving a "coursework only" approach to the core competencies. The principles were modified accordingly. While the committee was reluctant to compromise on this important pedagogical foundation of the proposed new core, it was felt that a stepwise approach, beginning with coursework only, would be more palatable to the College faculty.

d. The committee also met with University faculty governance representatives who were studying a University-wide curriculum. We decided to use as a selling point with College faculty the fact that our curriculum reform was ahead of any other College or School at the University and remained under the full control of the CALS faculty.

e. A matrix checklist (Appendix B) was developed to facilitate the comparison of existing major coursework requirements and the proposed core curriculum.

f. Our committee members met with every department and program director to determine how closely current major checklists met the proposed core, and to iron out any perceived problems.

g. Committee members held one-on-one discussions with specific influential or vocal faculty, identified either through their informal power in the College or their participation in the motion discussion at the May 1999 faculty meeting.

h. The chair of the committee met regularly with the Dean and kept him informed of committee progress. In March 2000 the committee chair met with the Dean's Council (chairs and program directors) to discuss the proposed core. After a brief presentation and discussion with Council members, the committee chair left with a strong sense of support from this influential group.

i. Finally, in preparation for the May 2000 faculty meeting, each committee member solicited a faculty member to speak "positively" toward the motion at the upcoming meeting.

A detailed memo was sent to all faculty two weeks before the May 2000 meeting. Topics included history of the College distribution requirements, reactions to the faculty concerns, revised Guiding Principles, and the revised CALS Core Curriculum (Appendix A). Two motions were proposed: 1. That faculty adopt the core curriculum to go into effect in a year (fall 2001 semester), and 2. That Departments and programs align their curricula by the end of the fall 2000 semester to insure catalogue changes are made.

At the May 2000 faculty meeting both motions were passed by a unanimous vote of CALS faculty.

Lessons Learned: The Obvious

Leadership: Having a dean enthusiastic about core curriculum reform was crucial to the adoption of the new core. Our new Dean supported the new core with his chairs and program directors, and he spoke positively during the May 2000 faculty meeting debate of the two motions. It was clear to everyone that the Dean was willing to risk political capital as well as commit financial resources to move the core curriculum forward.

Time: Giving faculty time to consider the changes was critical to the eventual adoption of the new core. In many ways the May 1999 faculty defeat of the core curriculum motion was a means to ask for more time. Adding a year-long implementation schedule to the May 2000 motions also helped faculty vote in favor of the motions.

Faculty Involvement: Getting faculty involved, through committee participation, Department presentations, or one-on-one discussions, helped pave the way for curriculum reform.

Responding to Faculty Concerns: Faculty seemed to respond favorably to the fact that the committee listened and acted on their concerns. It was made clear to faculty, both in the memo before and in the oral presentation at the May 2000 faculty meeting, that the core curriculum had been modified to reflect their input.

Committee Communication and Commitment: A steady stream of e-mail communications among committee members and regularly scheduled committee meetings were key to the success of the committee. Also, although committee membership varied, a core group of faculty members stayed with the project to shepherd it through acceptance by CALS faculty. Their strong belief in the importance and, indeed, righteousness of the cause was instrumental.

Lessons Learned: The Unexpected

Two-edged Sword: Initially presenting the framework for the core curriculum as “not too different” from the present distribution requirements was a two-edged sword. On one hand, faculty were comforted in seeing that the new curriculum was not radically different from what they were used to. On the other hand, the proposal was criticized for simply repackaging the current distribution requirements. This strategy worked to convince some faculty to accept the new core, while others, looking for even more dramatic change, were disappointed.

Coursework Only: Many faculty were not ready to accept student demonstration of competencies through any means other than coursework. Although that option has been kept alive by the committee, we believe it will be a difficult sell to faculty.

Guiding Principles: Laying out and adjusting principles to guide the work of the committee was a useful clarification exercise for the committee and gave faculty an understanding of the background and thinking of the committee that led to the new core curriculum.

Matrix: The spreadsheet matrix (Appendix B) provided a breakthrough for departments to easily compare their current major requirements with the proposed core. The matrix broke down the competency document into manageable pieces for which courses could be identified and matched up. The matrix also served to highlight problem areas where existing programs would need to be modified to fulfill the new core.

Implementation Questions: Interestingly, the focus of the public meeting discussions with faculty revolved around implementation or “how do we actually do it” type of questions. Very few questioned the actual content of the proposed core, perhaps reflecting the long-term developmental nature the committee took in crafting the document.

How many P's equal an X: The committee struggled with answering the common question of “how many courses that partially fulfill a competency (P) does it take to completely satisfy a competency (X)?” In the end, we gave the final authority to Departments to decide, using the definition of the competency as the basis for judgment. At the May 2000 faculty meeting, we also provided an example of how one Department justified a series of courses to fulfill a competency.

No New Courses: In responding to the faculty concern that the new core curriculum would mean adding more courses to an already full student schedule, the committee developed five coursework alternatives that could meet a competency:

1. Identify a currently required course that meets the competency.
2. Justify meeting the competency through multiple courses.
3. Modify an existing course or multiple courses to meet the competency.

4. Add a new course outside the department to meet the competency.
5. Develop a new course that meets the competency.

Committee Makeup: Perhaps reflecting the culture and the importance placed on teaching in the College of Agriculture and Life Sciences at the University of Vermont, the final committee was not solely composed of full professors with tenure. In fact, only two of the seven members were tenured professors (one full, one associate). Four committee members were lecturers and one holds a combination staff/faculty appointment. All committee members, however, were generally recognized as excellent teachers, with several of them having received College and University teaching awards.

Final Thoughts

What are the lessons for others attempting college-wide curricula reform? Three general recommendations can be gleaned from our experiences:

1. You will need champions for curriculum reform both within the faculty and the college administration. It takes time for faculty to adjust to a sea change curricular reform, so plan on several years, and don't be discouraged by setbacks.
2. Your approach should reflect the culture of the organization. Sometimes change is controlled by the senior faculty cadre, while in our case faculty members with a systemic view and proven abilities in the classroom were the catalysts for change.
3. Communicate. Communicate. Communicate. Curriculum reform needs to be an open process, among committee members, with the administration, and with faculty members.

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Corrigendum: The title to Mike Grever's article in the September 2001 issue should read "Teaching Agriculture to International Development Students in Guatemala"

Appendix A CALS CORE CURRICULUM

Knowledge

Students develop a fundamental base of knowledge that will serve as a foundation for lifelong learning.

A. Science: Students use the scientific method to understand the natural world and the human condition.

Physical & Life Sciences: *Competency may be met by satisfactory completion of two courses in such subjects as: anatomy, animal science, biology, botany, chemistry, ecology, entomology, food science, forestry, geology, genetics, microbiology, nutrition, physics, physiology, plant science, and soil science.*

Social Science: *Competency may be met by satisfactory completion of two courses in such subjects as: anthropology, community development, economics, geography, history, political science, public policy, psychology, and sociology.*

B. Humanities & Fine Arts: Students develop an understanding and appreciation for the creative process and human thought. *Competency may be met by satisfactory completion of two courses in such subjects as: art, classics, history, literature, music, philosophy, religion, language, theater.*

Skills

Students develop abilities and use tools to effectively communicate, analyze, problem solve, think critically and work with others.

A. Communication Skills: Students express themselves in a way that is easily understood at a level that is appropriate for the audience.

1. Oral: Students show confidence and efficacy in speaking before a group. *Competency may be met by satisfactory completion of AGRI 183 (or equivalent) where the primary focus is public speaking, and an additional course or series of courses in which students present a minimum of three graded speeches, in total, to a group.*

2. Written: Students effectively communicate in writing. *Competency may be met by satisfactory completion of any English writing course and an additional course or series of courses that uses the writing process (redrafting) for a minimum of three graded papers in total.*

B. Information Technology: Students demonstrate mastery of technology for communication, data gathering and manipulation, and information analysis. *Competency may be met by satisfactory completion of AGRI 85 (or equivalent) and an additional course or series of courses that uses computers for a minimum of two applications in total.*

C. Quantitative Skills: Students demonstrate the ability to understand and use numbers.

1. Mathematics: Students demonstrate the use of numbers for problem solving. *Competency may be met by satisfactory completion of Math 9 or higher.*

2. Statistics: Students demonstrate the use of numbers for data analysis and inference. *Competency may be met by satisfactory completion of Statistics 111 or higher or NR 140.*

3. Quantitative Skills Application: Students apply mathematics or statistics skills in a course relevant to their major. *Competency may be met by satisfactory completion of one course that utilizes principles from math or statistics.*

D. Critical Thinking Skills: Students demonstrate ability to comprehend, judge, and present written/oral arguments and to solve problems. Students learn how to distinguish between fact, conjecture, and intuition. *Competency may be met by satisfactory completion of any course or series of courses in which students solve problems and analyze, judge, and construct arguments.*

E. Interpersonal Skills: Students demonstrate the ability to work well with other people by understanding and using skills of leadership, conflict resolution and group process. *Competency may be met by satisfactory completion of any course or series of courses that includes leadership, working in diverse groups, conflict resolution, and group process.*

Values

Students are exposed to values that are expressed through relationships with community, the environment, and themselves that are consistent with the mission of the College of Agriculture and Life Sciences and the University of Vermont campus compact known as "Our Common Ground."

A. Citizenship & Social Responsibility: Students develop an understanding, appreciation, and empathy for the diversity of human experience and perspectives. Students are exposed to solving problems for a community and contributing to the common good. *Competency may be met by satisfactory completion of AGRI 95 (or equivalent) and one other course or series of courses that exposes students to these values.*

B. Environmental Stewardship: Students develop a sensitivity for the interconnected relationship between human beings and the natural world and the responsibility for stewardship of the environment. *Competency may be met by satisfactory completion of two courses or a series of courses that expose students to these values.*

C. Personal Growth: Students develop an understanding and appreciation of a healthy lifestyle and a love for learning that will lead to continuous growth and development throughout their life-span. Students continue to improve self by developing and affirming the values of respect, integrity, innovation, openness, justice, and responsibility. *Competency may be met by satisfactory completion of AGRI 99, two credits of physical education, and one other course or series of courses that exposes students to these values.*

