STANDARD 4: COLLEGE OF EDUCATION AND SOCIAL SERVICES

Philosophy

The College of Education and Social Services' (CESS) mission, revised in 1989, is to provide "leadership in addressing the educational and human service needs of Vermont and the nation. We do so by preparing outstanding professionals in education, social work, and human services, engaging in scholarship of high quality, and providing exemplary professional service. The ultimate purpose of these activities is to create a more humane and just society, free from oppression, that fosters respect for ethnic and cultural diversity, and maximizes human potential and the quality of life for all individuals, families and communities." The revised CESS by-laws, adopted in 1996, elaborate the mission further by adopting three "enabling goals" that help to enact the mission: a spirit of collaboration, a spirit of inclusiveness, and a spirit of reflective analysis.

In 1994, the CESS reorganized into three departments: Department of Education, of Social Work, and of Integrated Professional Studies. Each academic program is crafted to assist students in (1) developing complex cognitive skills such as reflection, critical thinking, and oral and written communication; (2) applying knowledge to practical problems encountered in their vocation and personal life; (3) understanding and appreciating human differences; and (4) developing a coherent integrated sense of identity, integrity, and civic responsibility.

Undergraduate Degree Programs

Undergraduate programs are offered in six educator licensing programs, human development and family studies, social work, and the independently designed program. All CESS undergraduate students meet the College of Arts and Science general education requirement. Since 1992, students in the teacher education programs have been required to complete a 30 credit-hour major concentration in a liberal arts or science discipline. These concentrations meet the requirement for Vermont licensure. Designed collaboratively by teacher educators and the discipline-based faculty members in the arts and sciences, the major concentration requirements include an introductory to advanced sequence of study to ensure that the beginning teacher is well grounded in a discipline.

The remainder of a student's undergraduate program is composed of course work in the profession. In 1988, there was concern that students had field experiences only once and too late in their academic career. Now, most professional courses link study with practica in schools and community settings. In addition, all CESS professional programs require an extended internship in the junior or senior year. Although students are admitted as first year students to the teacher education and social work programs, they are required to apply for admission to the professional portion of the program. Thus, by the time students are in the field in practica, they have been reviewed and admitted to the professional sequence of study. Following requirements for Vermont licensure, teacher education programs require a GPA of 2.5 for admission to the professional part of the program, and students must graduate with at least a 3.0 to be approved for licensure.
There are four baccalaureate degrees offered by the College. They are: Bachelor of Science (Human Development and Family Studies, Social Work, Early Childhood Education/ Pre-K - 3); Bachelor of Science in Art Education/Teacher Education, Bachelor of Science in Education (physical education/athletic training, teacher education/elementary [K-6], teacher education/physical education [K-12], teacher education/secondary [7-12], individually designed major); and Bachelor of Science in Music Education. The College offers a fifth-year certificate, the Post-baccalaureate Teacher Preparation Program, for individuals who have earned a B.S. or a B.A. and now desire to be licensed to teach in Vermont. The program meets the professional education requirements for state licensure in the areas of Grades K-12 (art, music, physical education), Grades K-6 (general elementary education, physical education), Grades 7-12 (English, foreign language, mathematics physical education, science, social studies).

**Oversight of Curriculum**

CESS programs and departments take seriously their commitments to offer courses and degrees that meet the highest pedagogical and professional standards. Over the past six years, CESS has been in the process of developing continuous strategic planning. In the academic year 1991 - 92, the College conducted a self-study, reviewing all programs and assessing their efficacy in six domains: Centrality to CESS and UVM mission, comparative advantage, cultural diversity, academic excellence, service to the State, and demand for the program. This analysis ultimately resulted in ceasing to offer licensure programs in vocational education, health education and school librarian. The revision of the Vermont State licensure requirements in 1994 led to a review and revision of all the professional educator preparation programs in the College.

In addition, each professional program is accredited by the appropriate accreditation body. In preparation for those visits, the program faculty members undertake a significant self-study to examine program quality in relation to the relevant standards (accreditation reports will be available to the NEASC team). The Social Work baccalaureate program was reviewed in 1993 and received accreditation to 2001 from the Council on Social Work Education. The most recent visit of the National Commission on Accreditation of Teacher Education in the fall of 1997 approved all educator preparation programs until 2002. Responding to the professional licensure requirements and accreditation processes engages the faculty in a process of ongoing planning, review, and revision of programs to ensure that they meet high standards.

Accreditation teams cite the following concerns: the lack of diversity in faculty and student populations and in field experiences, and inadequate support for faculty lines, leaving programs barely meeting standards for instruction. Commendations noted the excellence of program design, integration of field experiences in academic programs, and use of portfolios in the educator programs.

Constant and more general oversight of the curriculum is provided at the program level. All new courses or revisions in either program or program requirements are submitted for review and approval/disapproval to the program faculty, the department faculty, the CESS Academic
Instruction

Students have an opportunity to learn in classes which employ a variety of pedagogical techniques and in a variety of settings. Most of the student’s course work in the College is in advanced professional courses that link theory with practice, often including both classroom time and time spent in a school or agency. While some courses are taught as single courses meeting two or three times a week, others are team-taught “blocks,” such as the Literacy Block in Elementary Education, which combine theory, teaching methods, and experience in the schools and meet for two full mornings or afternoons a week. These redesigned programs resolve the 1988 concern that faculty would neither engage in redesign nor engage in collaborative teaching.

Four years ago the CESS faculty adopted four College-wide curricular goals, and each program faculty has developed, as much as possible, ways to ensure that each is addressed during the course of the student’s program.

The *multicultural goal* is to infuse curriculum and practice with a multi-cultural and diverse perspective. The recent UVM compilation of multi-cultural courses included an extensive list from CESS, an indicator of a good deal of infusion being accomplished across the programs, although the general absence of diversity in practica continues as a challenge.

The *inter-professional goal* is to develop educational and practice models that integrate professional service to clients — whether children, families, schools, or agencies. Examples are Social Work’s participation in the Area Health Education Center (A.H.E.C.) program with the College of Medicine; the campus-wide Vermont Interdisciplinary Leadership Education that trains pre-professionals from social work, special education, and other disciplines to work with infants with severe health needs, and the course entitled “Issues Affecting Persons with Disabilities,” taught by Special Education faculty for the teacher education students. In 1997-98 the CESS Academic Affairs Committee began a process of examining how inter-professional practice might inform the curriculum in each program, and whether there are ways to enhance and further the cross-program fertilization beyond what is already being accomplished. However, current student programs still address this minimally.

instruction is delivered in the field and faculty research engages issues of theory/practice integration and professional practice.

The fourth goal is to *infuse technology* into all programs. This has particular relevance for educators as the K-12 environment grows increasingly technologically complex and any new teacher or administrator must be prepared to make creative and productive use of technology. A newly funded project will bring desktop computer connections to CESS students who are engaged in practica at a distance. Additionally, a gift to the Early Childhood Program has made it possible to use technology to expand a project of documentation of children’s learning, impacting both teaching and research in the Early Childhood programs. Further development is frequently stalled due to inadequate resources.

Instruction in the college reflects varying levels of address to each of the goals. In addition, instruction is assessed through departmentally designed student evaluations of teaching, and by peer review of teaching as part of the promotion and tenure process, or at a faculty member’s request.

CESS professional programs often require assessment of students beyond simple grades. For example, each program has developed a form for assessing student performance in field experiences. Moreover, in accordance with the Standards for Vermont Educators, students seeking a license to teach must develop a portfolio that documents how they meet the five basic competency areas and the specific standards for the particular area of licensure.

**Advising**

Members of the College maintain that high quality professional preparation and close, continuing advising are inextricably linked. Beginning with their first day at UVM, CESS students are thus introduced to the faculty members who will serve as their academic advisers and professional mentors. Students are connected with their advisors at the start of the Fall semester, and most students stay with the same advisors throughout their time in the College. The Fall 1997 New Student Orientation witnessed the inaugural Community Plunge, a festive event in which new CESS students went on planned treks through Burlington with their faculty advisers, noting community sites and issues relevant to economic opportunity and social justice in the surrounding campus community. Student evaluations of the event were uniformly positive and indicated that students were pleased to be engaged in a social and intellectual activity that linked them with their advisors, other professors, peers, and ideas related to the practice of their chosen profession early in their first week on campus.

These student-adviser relationships are sustained throughout the year by periodic “checking-in” initiated by both the student and faculty advisor. The revised CESS curriculum calls for students to be enrolled in CESS courses their first year. Most of those courses are either taught by or have breakout groups run by the student's advisor, thus ensuring ongoing contact between advisor and student. Advising is valued by the College as an integral component of a faculty member’s responsibilities and new ways are being sought to measure advising effectiveness.
Scholarship and Service

As a professional school, the College of Education and Social Services has been rigorously engaged with the public in research and outreach efforts. Such endeavors stem from the faculty’s commitment to action research that links meeting human needs with a search for knowledge. These commitments are evidenced in the research projects incorporated in class assignments, the number of texts authored by CESS faculty, the collaborative research projects linking CESS with communities and agencies, and the success with which CESS faculty have secured outside research dollars.

Additionally, CESS faculty is extensively involved in providing service to Vermont schools, agencies, and families. These commitments are evidenced by such things as the growing number of courses offered “off-site,” enabling citizens to take advantage of the expertise offered by the College, the Professional Development Schools in which CESS faculty work with school systems to meet their demands for continuing educational opportunities for teachers and school personnel, and increasing amounts of consultation and technical assistance provided by faculty and graduate students.

Appraisal

CESS in 1998 seems to be an entirely different college from the 1988 description. Isolated teaching and unexamined programs have been replaced with engaged groups and revised, field-based programs. Although the decade witnessed significant transition in the College, specifically three deans and a number of unreplaced retirements, recent administrative stability has supported faculty and encouraged them to engage in renewal, research, and high levels of field-based work. As a result, CESS professional programs have gained focus and coherence and integration of general studies is more refined through collaboration with the Arts and Science faculty.

Projection

The most significant challenge facing the College is to establish base sustainability for programs. In part that will require some additional faculty lines, but it also will be the opportunity to create clear articulation with professionals in the field who work with CESS students in practica and internships.

Professional practice in education, social work, and human services is constantly being revised to respond to new social and political demands. All programs will need to engage in a continual planning and revision as accreditation standards and licensure requirements for each profession alter to respond to these demands.

All programs will continue to seek ways to ensure experiences for students with diverse populations and in inter-professional practice. Faculty research and scholarship also needs to continually evolve. A proposed revision of the CESS Promotion and Tenure Guidelines poses a definition for faculty scholarly work that more directly rewards integrative research...
models. Clearly, the demands to connect with and contribute to the developments in agencies and schools will continue to vie for faculty member’s time and expertise.
STANDARD 4: COLLEGE OF ENGINEERING AND MATHEMATICS

Description

The College of Engineering and Mathematics of the University of Vermont offers undergraduate degree programs in computer science, engineering, and mathematics; participates in graduate programs at the M.S. and Ph.D. level offered through the Graduate College; and provides instruction in mathematics, statistics, and computer science for the entire campus. The primary mission of the College is to provide quality undergraduate education enabling graduates to either embark upon productive careers and continue learning throughout these careers, or to undertake graduate study immediately upon graduation. Undergraduate students in the College are broadly educated and must complete general and distributive requirements in courses offered by the College of Arts and Sciences in addition to their major programs in the College of Engineering and Mathematics.

In the Fall of 1988, headcount enrollment of undergraduate students majoring in the units of the College of Engineering and Mathematics stood at 971. By the Fall of 1997 undergraduate majors had declined to 465. There appear to be several causes for this decline, including: (1) national trends, down 18 percent in engineering over the period, down 40 percent in computer science and in mathematics; (2) a general decline of UVM enrollments by about 10 percent; and (3) an unfortunate announcement in 1991, by a president’s planning committee, of a recommendation that engineering be eliminated due to high costs. Although this recommendation was quickly rejected, the publicity had unfavorable effects. Efforts to turn this trend around appear to have been successful and Fall 1998 enrollments were up about 30 percent over Fall 1997. Total graduate enrollments in the College are about the same (150 students) as they were in 1988. About 58 percent of the student credit hours taught by the College represent the instruction of undergraduate and graduate students majoring in other units of the University. That number is down slightly over the decade due to the general decline in the University’s enrollments.

Since the University’s last report in 1988, the Division of Engineering, Mathematics and Business Administration has been dissolved; the College of Engineering and Mathematics and the School of Business Administration now operate totally as independent entities. Other administrative changes include the formation of separate Departments of Civil and Environmental Engineering and of Mechanical Engineering from what had been a joint Department of Civil and Mechanical Engineering; and formation of separate Departments of Computer Science and of Electrical and Computer Engineering from what had been a joint Department of Computer Science and Electrical Engineering.

Baccalaureate programs are offered in Civil Engineering, Mechanical Engineering, and Electrical Engineering, all of which are fully accredited by the Accreditation Board for Engineering and Technology (ABET), in Computer Science, Mathematics, Statistics, and, in conjunction with the School of Business Administration, in Engineering Management. All units and programs of the College offer M.S. degree programs; the Ph.D. degree is offered in Civil and Environmental Engineering, Electrical and Computer Engineering, Mechanical Engineering, the Mathematical Sciences, and through the interdisciplinary Materials Science Program. The Ph.D. programs in Civil and Environmental Engineering and in Mathematical Sciences were instituted about five years ago. Other programs have remained relatively stable except for regular upgrading of the curricula. The last ABET visit was in October
1997. There were no deficiencies noted by the visiting team in the undergraduate engineering programs.

The College is distinctive in several ways, including its: (1) fruitful collaborations with other UVM units, such as the College of Medicine, which enrich both research and teaching; (2) small size, which ensures that most learning experiences involve direct interactions with regular faculty in small classes and laboratories; (3) strong computing and laboratory facilities; (4) faculty, who are active in research and professional practice; and (5) strong record of academic and career achievements of its students.

Degree Programs

The undergraduate degree programs offered by the College of Engineering and Mathematics are:

- Bachelor of Science in Civil Engineering (BSCE), accredited by the Accreditation Board of Engineering and Technology, Inc. (ABET)
- Bachelor of Science in Mechanical Engineering (BSME), accredited by ABET
- Bachelor of Science in Electrical Engineering (BSEE), accredited by ABET
- Bachelor of Science in Mathematics (BSM), with majors in general mathematics, statistics, and applied and interdisciplinary mathematics
- Bachelor of Science in Computer Science (BSCS)
- Bachelor of Science in Engineering Management (BSEM), in cooperation with the School of Business Administration

Minors are offered in computer science and in statistics.

General Education

Each student in the College must take both general distribution and College-specific courses, per the following:

*English, Oral and Written communication:* Each student in the College is required to take English 1 (3 semester hours). In addition, students in engineering and engineering management are required to use and demonstrate oral and written communication skills in a number of the courses in the major.

*Mathematics, Statistics, and Computer Science:* Each student in the College is required to complete calculus at least through Calculus III (totaling 12 semester hours), at least one statistics course (3 semester hours), and at least one computer science course (4 semester hours). Individual programs may require additional study in these areas.

Students majoring in one of the three majors offered by the Mathematics and Statistics department must include 24 semester hours from a list of "allied field courses," which
involve physical, biological, medical, computer, or agricultural sciences, engineering, business administration, psychology, or economics. They must also include 21 semester hours from an approved list of language, literature, fine arts, philosophy, religion, and social science courses.

Natural and Physical Sciences: With the exception of majors in mathematics, statistics, and computer sciences, all students are required to take two semesters of Physics (total of 10 semester hours) and at least one semester of chemistry (four semester hours). Computer science students must take four semester-long courses from among physics, chemistry, or biology, including one sequence.

Physical Education: Students in the College, as all UVM undergraduates, must successfully complete two credits of physical education.

Social Sciences, Humanities, and Race Relations:

BSCE, BSEE, and BSEM: All students are required to take 18 credit hours of humanities and social science courses from an approved list and must include a three-credit course which addresses Race Relations and Ethnic Diversity from the Catalogue list of the College of Arts and Sciences bearing that title.

BSME: All students are required to take 16 credit hours of humanities and social science courses from an approved list and must include the one-credit Race and Culture course, Allied Health (AH) 95.

BSCS: All students must complete at least two semester courses for a minimum of six credits in each of the two areas of: (A) social sciences, to include anthropology, political science, psychology, geography, sociology, and history; and (B) humanities, fine arts, and philosophy, to include art, drama, language, literature, music, philosophy, religion, and speech; plus 15 additional credits in humanities, arts, and social sciences courses, which must include at least one Race and Culture course from an approved list.

BSM: The social science and humanities requirements for Mathematics and Statistics majors are described above. In addition, they must complete the one-hour Race and Culture course, AH 95.

Interdisciplinary Opportunities

The Applied and Interdisciplinary Mathematics major of the Bachelor of Science in Mathematics (BSM) and the Engineering Management program (BSEM) are by their very nature interdisciplinary. Several of the other majors offer interdisciplinary options — for example, the Environmental Engineering option in the BSCE degree; premedical options in the BSEE and BSME, and in the Mathematics and Statistics majors; and biomedical engineering options in the BSEE and the BSME.

A number of cross-college minors, such as Business Administration and Natural Resources, are available to students, but a minor field of study is required only for BSCS students.
Oversight of Curriculum

Degree area curriculum committees and departments of the College bear primary responsibility for initiating, evaluating, and continuous improvement of the courses and curricula. All new and revised courses, majors, minors, and degree programs are reviewed and approved by an elected College Curriculum Committee before being recommended for a vote of the Faculty of the College. New degree programs and major changes in existing programs are subject to further approval of the Academic Affairs Committee of the Faculty Senate, the Provost, the President, and the University’s Board of Trustees. Courses and curricula are periodically evaluated at the level of the degree-area curriculum committees, departments, and the College.

Instruction

Classroom instruction in the College of Engineering and Mathematics is characterized by small classes (30 or fewer students) almost always taught by faculty members. In addition, the instructional program includes seminars, laboratories (some of which are taught by graduate students), individual research opportunities (with faculty and post-doctoral research staff), and cooperative education and internship opportunities (at various off-campus sites).

Instruction is evaluated by students during each course. Additional measures of the quality of instruction are also used in all faculty personnel actions and in the periodic evaluation of curricula. All alumni are invited to evaluate all aspects of instruction and curricula at five and ten years after graduation.

Each student in the College is required to acquire and use a personal computer during the entire undergraduate program. In addition, the College supports networks for communication among computers and provides computer laboratories both for instruction and for advanced applications which cannot be accessed through personal computers. Key classrooms are equipped for computer-output projection and with other traditional projection and sound systems. Classrooms for initiating and receiving distance learning signals are also available and used for some of the instruction.

Each student has an assigned faculty advisor who is in turn supported by departmental and college records and by the College’s Student Affairs Office. Advising is considered an important part of each faculty member’s assigned responsibilities and is assessed as part of all personnel decisions. The College’s Student Affairs Office maintains records, checks progress toward the degree, conducts graduation checks, and provides guidance and advice with regard to University and College rules, standards, and services. Access to placement, cooperative education, and internship opportunities is facilitated through the staff of the Student Affairs Office. The University maintains support services for limited tutoring and supplemental instruction, for psychological counseling, for assistance to students with learning disabilities, and for career planning and resume records.

Appraisal

With the exception of The University of New Hampshire, our competitors for undergraduate students tend to be private colleges, often focused technical colleges. UVM’s high tuition
and relatively limited financial aid packages often put us at a serious disadvantage in recruiting students to the College. We have initiated a scholarship program, which, if it can be fully funded, should make us more competitive. It was partly responsible for the increase in the first-time, first-year enrollments this year.

The College’s general fund allocation from the University was reduced for each of the six years prior to the current (FY99) fiscal year. This has lead to serious problems in operating the College’s programs, which provide 10 percent of the credit hours taught in the University. We are short $200,000 per year in equipment replacement funds, have no budget for start up costs for new faculty members, and there are now only two budgeted laboratory technicians positions in the entire college. This latter factor is a matter of serious concern for laboratory equipment maintenance and shop safety.

The College desperately needs additional space for teaching laboratories, faculty offices, research laboratories, and for technical assistance to Vermont firms. Although the addition of a fourth floor to the Votey building would ease this problem, the University does not currently have a plan in place to fund this addition.

Projection

The economy of the State of Vermont is very dependent on high technology and information technology industries. Graduates of the College are in high demand and students seeking to enter the University find the College’s programs attractive. We are projecting a healthy increase in the number of students majoring in the college over the next five years. Federal Grants and Contracts in support of research in the College are increasing. Alumni support is strong and local industries regularly seek the assistance of our faculty in solving technical problems. Given these conditions, it seems likely that UVM will continue to support the College and its efforts to improve.
STANDARD 4: SCHOOL OF NATURAL RESOURCES

Philosophy

The School of Natural Resources (SNR) cultivates enhanced understanding of ecological and social processes and values in order to maintain the integrity of natural systems and achieve a human community in harmony with the environment. We challenge our students to acquire knowledge, skills, and values to become innovative, environmentally responsible, and accountable leaders.

Our teaching and scholarship programs are mutually enhancing and represent a seamless continuum. The foci of our integrated ecosystem research program (SNR Appendix A on file) also serve as the foundation of our curriculum. Emphasis on the integration of ecosystem/environmental science with social/cultural perspectives reflects the interdisciplinary context in which ecosystem management, resource planning, and environmental concerns must be addressed. The structure of the School is consistent with this emphasis. SNR was founded twenty-five years ago on the intellectual foundations of holism and integration, and has chosen not to isolate its seven undergraduate majors into independent, autonomous academic departments. As such, distinctions among disciplines are de-emphasized and the School's faculty functions as a single entity.

Changes Since the 1988 Accreditation Report

The School of Natural Resources has grown considerably and undergone substantial and exciting program and curricular change since the 1988 accreditation review. Since 1988, SNR undergraduate enrollment has grown from 350 to about 500 students and graduate student enrollment has grown from about 37 to 70 students. SNR revised its mission to reflect our modern day teaching, learning and scholarly goals and broadly define the roles of the faculty, staff, and students in pursuit of these goals. The School’s mission now stands as the basis for personnel evaluation. During this period of evolutionary development, we have remained cognizant of and have closely adhered to three guiding principles — quality academic programming, human resource management, and program development focused on our established intellectual strengths (Documentation on the School’s mission and guiding principles will be on file for the CIHE/NEAS&C evaluation team).

Major curricular changes were highlighted by a thorough analysis and restructuring of the SNR integrated core curriculum, which provides a critical integrated foundation for all students in the School and the curricula associated with each SNR major. The specifics of the curriculum development process are summarized later in this report. Importantly, SNR emerged from this multi-year process not only with a new integrated curriculum, but as a holistic faculty community accepting and celebrating change.

During the past 10 years, SNR has also added broader-based undergraduate majors in Natural Resources and Environmental Sciences to complement the traditional sub-disciplinary majors offered by the School throughout its history. The Natural Resources major takes full advantage of our substantial faculty strength in Resource Ecology and Aquatic Resources. It
also provides a rigorous option for students to work closely with a faculty advisor to design an Integrated Natural Resources major that is strongly interdisciplinary and takes full advantage of the breadth of course offerings from throughout the campus. The Environmental Sciences major, developed following a two year analysis of academic and market place needs by a faculty committee representing four UVM Schools and Colleges, has led to several new courses that have truly enriched the campus. SNR developed a formal internship program and hired an Internship Coordinator as an important part of this program. Internship efforts quickly were expanded to include students in all majors within the School.

At the graduate level, SNR added a Master of Science program in Water Resources and a Ph.D. program in Natural Resources over the past 10 years. These programs take advantage of established faculty expertise and the considerable entrepreneurial capability of our faculty. Although SNR now has four Master’s foci, program boundaries are conspicuously and intentionally blurred so that students take courses, interact with faculty, and develop scholarly emphases that extend across the designated Areas of Emphasis. Our recently developed doctoral program also encourages some interdisciplinary understanding as well as sub-disciplinary specialization in the preparation of the next generation of scholars.

Finally, SNR has broadened its traditional Water Resources Research Center to become a Water Resources and Lake Studies Center, which reflects faculty expertise and interest and our proximity relative to Lake Champlain. The transformed Center has been instrumental in implementing a major research initiative on Lake Champlain and establishing a partnership with the city of Burlington that has lead to the construction of the Rubenstein Ecosystem Science Laboratory, an SNR research/teaching facility under construction on the lakefront.

**Undergraduate Curriculum**

The School of Natural Resources awards the Bachelor of Science degree in seven majors: Environmental Science, Environmental Studies, Forestry, Natural Resources, Recreation Management, Resource Economics, and Wildlife and Fisheries Biology. Within several of these majors, there are multiple options that are substantially different in perspective. Total credit hours required for the degree varies by major from 120 to 126.

**Curriculum Development Process:** As part of an in-depth curricular analysis supported by two competitive grants from the USDA Higher Education Challenge Grants Program (1991 and 1993), the SNR faculty collectively identified critical outcomes in the areas of knowledge, skills, and values that every SNR graduate should possess. We then defined the inputs necessary in each category to accomplish these outcomes. The collective inputs and outcomes (SNR Appendix C on file) served as raw material for the design of SNR’s curriculum and outcomes assessment, especially our undergraduate core curriculum (Appendix D on file).

The seven core courses (21 credit hours) range from introductory to advanced with specific attention to vertical integration of subject matter and a specified function for each course in the integrated sequence. The core curriculum is founded in both the scientific and human dimensions of the environment with increasing emphasis on disciplinary integration.
problem-solving, critical analysis, and application as students progress through their program.

The core is also a multiculturally transformed curriculum that includes explicit content on race, gender, multicultural perspectives, and cultural diversity presented in the context of the environment. This information is presented in four of the seven core courses. In addition, a new course, Race and Culture in Natural Resources, simultaneously introduces first-year SNR students to issues of race and racism related to the environment. The latter one-credit course has substantially raised the awareness and sensitivity of our students to racial issues and serves as a lead-in to subsequent multidimensional coverage of multiculturalism throughout several of the core courses.

The general education requirements (33-34 credit hours) provide students with experiences fundamental to their personal and professional lives. Eleven courses are required in five areas: Human Cultures and Civilizations, Human Relationships, Writing and Speaking, Quantitative Analysis and Problem Solving, and Biological and Physical Science. In addition, there is a University-wide physical education requirement of two credits. Fulfilling general education requirements accounts for approximately one-quarter of the student's program, though some of these credits double-count toward fulfilling specific requirements in a major.

Major requirements develop depth of understanding in a specific field. Some options focus heavily on the Life Sciences: Forest Biology, Environmental Sciences, Aquatic Resources, Resource Ecology, Fisheries Biology, and Wildlife Biology. Some are very social science oriented: Recreation Management and Resource Economics. The Integrated Natural Resources option and Environmental Studies major are self-designed and especially interdisciplinary.

The School of Natural Resources bachelor's degree does not require a minor, but we do offer minors in Aquatic Resources, Environmental Studies, Forestry, Recreation Management, Resource Economics, and Wildlife and Fisheries Biology. These minors are available to students from any academic unit on campus, and SNR students are also encouraged to complete minors in academic departments outside the School.

Options for Academically Talented Students

The SNR Honors Program rewards academic excellence by providing opportunity for highly motivated students to work on projects with faculty, either one-on-one or in small interactive groups. This is a two- to three-year experience which students are invited to join based on their academic performance after they have completed at least one year of coursework. The program includes three activities: an Honors Seminar, an Honors Project Planning Course, and an Honors Project.
**Honors Seminar:** This one-credit course, taken sophomore or junior year, is built around the SNR Spring Seminar Series, which includes weekly presentations and discussions by visiting scholars. The focus is on readings and discussion with occasional additional enrichment activities.

**Honors Project Planning Course:** In spring of the junior year, honors students participate in a one-credit course emphasizing research methodologies and planning and the development of their honors project proposals. Competitive grant funding of up to $200 is available for Honors Projects.

**Honors Project:** In the senior year, a three-credit individual or small-group Honors Project is completed under the supervision of a faculty project advisor and includes an oral presentation and defense. The project is reviewed and evaluated by the faculty project advisor and by the major SNR academic program in which the student is enrolled.

**Interdisciplinary Opportunities**

All natural resources majors are inherently interdisciplinary because they are built on the strongly integrated core curriculum. The Integrated Natural Resources option and the Environmental Studies major explicitly invite students to design their own major concentrations around interdisciplinary themes.

**Oversight of Curriculum**

The School of Natural Resources functions essentially as a single unit with each academic program controlling requirements for its specific major and minor. The faculty as a whole developed the SNR core curriculum and general education requirements, though these changes were carefully reviewed and approved along the way by the separate program faculties as well. All new and revised courses are reviewed and approved first by a program faculty, second by the School Curriculum Committee, and then must be voted upon by the SNR faculty as a whole. Changes in requirements for majors and minors are made at the program level.

**Core Oversight:** Faculty who teach core courses meet regularly to insure vertical integration and share course changes.

**Honors Committee:** The School Honors Committee is responsible for oversight of the Honors Program.

**Instruction**

**Special Emphases Within SNR:** Active and collaborative learning in the classroom and experiential education opportunities are important elements of our curriculum. Outdoor learning experiences provide students with firsthand observation, hands-on analysis, and a clear understanding of resource management practices. Although natural resources course work centers around classrooms and laboratories, field trips are held often to nearby forests,
lakes, streams and other natural areas. The School manages UVM's nine ecologically
diverse natural areas and frequently utilizes these areas for teaching, research, and
demonstration.

The School offers students assistance in securing summer, part-time, and permanent
employment in natural resources fields. Well-developed internship and cooperative
education programs award academic credit for contracted work experiences. Internships may
be paid or unpaid, part-time or full-time. During the 1997-1998 academic year, over 100
SNR students participated in internships; 70 percent of these were paid.

*Evaluation Of Instruction:* The in-depth curricular analysis undertaken with the USDA
Higher Education Challenge Grants support in 1991 and 1993 enabled the faculty to define
outcome parameters for the curriculum. These, coupled with the explicit vertical integration
of the curriculum, enable us to evaluate student progress and the curriculum itself. Through
the open and abundant communication among core course instructors, each has a clear set of
expectations of what students should know (knowledge), be able to do (skills), and stand for
(values). The course coordination provides an exceptional mechanism for measuring
progress toward meeting the goals of our program. In addition, we periodically survey our
alumni (SNR Appendix E) to assess their preparation for employment and satisfaction with
their education. The SNR Student Advisory Board also meets regularly with the associate
dean and reviews all elements of the School's academic program and majors.

**Advising**

The School of Natural Resources considers quality academic advising to be an integral part
of the teaching mission and of central importance to the supportive atmosphere of the School.
Academic advising is considered in faculty advancement, and students are often asked to
discuss the quality of their advising experience. Responding to an advising survey in 1994,
94 percent of SNR students expressed satisfaction with their advising assistance, and 71
percent were positive or very positive about the help or information provided.

The small size of SNR permits many opportunities for student-faculty interaction in and
beyond the classroom. Although faculty advisors generally have as many as 30 advisees,
most take their advising and mentorship role very seriously and strive to work closely with
each individual student on course decisions, career exploration, part-time employment
referrals, and academic and personal concerns.

*First-Year Student Advisors:* The six faculty who serve as advisors to first-year students
have particular interest in working with students early in their college careers, helping to
identify options, providing, support, and assisting students in their transition into college.
These advisors meet with their new advisees during the June Orientation, again during the
Connections program before classes start in the fall, and then throughout the first year. They
will continue advising these students as sophomores too if the student remains undecided
about a major. Based on first-year student input and an increased frequency of advisor-
advisee contact, we believe the first-year advising program (established in 1994) has been a
very positive success story.
Upper-Level Student Advisors: Students who have decided on a major by the end of the first year switch to a new faculty advisor, someone who specializes in advising upper-level students in a particular academic area. These faculty enjoy sharing their knowledge of the professional job market, encouraging internships and study abroad options, and helping students explore the potentials of graduate education.

Transfer Student Advisors: Students who enter the University with a year or more of academic credits are immediately assigned to an advisor in their major. They confer with this upper-level student advisor on course selection for the first semester and get together for a face-to-face advising session during the Orientation Program. Sorting through transfer credit evaluations and finalizing how credits will be allocated toward fulfilling UVM degree requirements is a key task in this advising relationship.

Successful advising requires a collaborative effort between the student and the faculty advisor. In spring 1998, the SNR Faculty formally endorsed a set of detailed expectations for first-year students and their faculty advisors and for upper-level students and their faculty advisors. A new advising evaluation instrument is being developed based on these specific expectations.

Appraisal

The School of Natural Resources has matured substantially over the past 10 years. Our work in curriculum development and implementation, academic advising, and curriculum transformation has served as a model that has been nationally disseminated in numerous fora among natural resource and environmental programs. Although we have learned that our curriculum and pedagogy must be dynamic and constantly evolving (an important lesson in its own right), the SNR community of students, staff, and faculty take pride in the progress we have made toward the development of a high quality, integrated environmentally focused academic experience for our students. We clearly have work left to do, but have reached a developmental stage where we view such work as a critical responsibility of the faculty and an exciting opportunity to enhance the community spirit and learning environment of the School.

We also have begun a thorough analysis of our general education or distribution requirements. Our concern is that our current rather standard and traditional general education requirements may not meet student needs for the 21st century. Our faculty has developed a set of learning objectives for our general education requirement and is currently exploring ways to transform these into meaningful experiences for our students. As a School, we have also learned to work within the resource constraints that exist and to seek external support for curricula and cultural diversity initiatives as well as traditional research support.

A continuing major challenge for our School is enhancing cultural diversity in our faculty and student body. Despite the creation of nine Multicultural Scholarships from external grant funds, SNR remains conspicuously under-populated by students of color. As a unit

Standard IV: School of Natural Resources
committed to cultural pluralism and fully recognizing its benefits from an academic and societal perspective, we have fallen short of our goals of enriching the educational experience and relevance of our programs for all students because of the relatively homogenous ethnicity of our faculty, staff, and students. This is a major challenge for our future.

Projection

SNR has defined its niche focused on the integration of ecological and social processes and values, including advanced technological approaches to achieving this integration through spatial analysis techniques, planning, and modeling. This interdisciplinary approach is pervasive throughout our undergraduate teaching and increasingly characterizes our research efforts as well. We have begun to incorporate elements of integration into graduate education programming. Our faculty have recently approved and agreed to require of all SNR graduate students a distinctly interdisciplinary course. This action marked the first school-wide graduate level requirement. We intend to move forward as a School to enhance our investment in graduate education by addressing the challenging questions of how can we best educate tomorrow’s scholars. We have strong graduate student interest in our programs and an opportunity to further enhance the stature of UVM as a premier institution in the environmental arena through enhanced graduate study options.

We also will pursue educational and research initiatives in the broad arenas of Sustainable Ecosystems and Ecological Design. These two inter-related areas depend on the integration of the extant disciplinary strengths of the School, while meeting the interests and needs of current and future students. In particular, ecological design initiatives offer creative solutions to vexing environmental challenges facing our society. We must find ways to engage our students in such creative, forward-looking initiatives. As SNR looks into the future, we will seek to creatively and continuously invigorate and challenge our faculty and to fill positions in a manner that preserves the essentials of the disciplines, while promoting cooperation and integration across disciplines.
STANDARD 4: THE SCHOOL OF NURSING

Philosophy

The faculty believe that nursing education is based on research and theory directed toward addressing the health needs of society. Professional education in nursing rests on a substantial foundation in the liberal arts and sciences and integrates knowledge from these disciplines into nursing's organized body of knowledge. We believe involvement in the academic community offers enrichment and diversity for students and faculty. Professional nursing education is designed to prepare its graduates to be responsible and accountable for critical thinking and decision-making within the health care system. Nursing education also emphasizes skills in collaboration and shared decision-making with clients and other health care providers. Nursing education assumes that teachers and students are collaborators in the teaching and learning process. Students bring their own life experiences that enrich the learning atmosphere. We believe that education is a life-long process of personal and professional development.

Undergraduate Degree Program

The School of Nursing offers a baccalaureate of science degree with a major in nursing upon completion of a minimum of 127 credit hours in full- or part-time study. The major components of the curriculum are: required non-nursing courses, elective courses, and major nursing courses.

As the curriculum plan demonstrates, there are 53 credit hours of required non-nursing courses, 15 credit hours of elective study and 59 credit hours of major nursing courses. The nursing sequence includes both theory and practicum courses.

The School also offers an RN-BS-MS program. The curriculum plan is available. This program allows the student to graduate with the baccalaureate of science degree in two years. The program completes the non-nursing and nursing courses that Registered Nurses did not have as part of their basic nursing preparation. Most students require 61 credits of additional study to accomplish the baccalaureate degree.

Graduate Program

The graduate program has three tracks leading to an MSN degree. The tracks are Adult Health, Community Health, and Primary Health Care. The Adult Health track prepares nurses for advanced practice roles in today's health care system. Competencies addressed in the track include expert practice, ethical decision making, consultation, expert guidance and coaching, research, leadership, collaboration, and change agent skills.

The graduate who has selected the community health nursing track will be prepared to collaborate with other disciplines to identify actual and/or potential health needs of populations and to develop and evaluate programs that address these needs. The student will...
study the assessment, development, implementation, and evaluation processes used for health promotion and disease prevention of populations.

Advanced physical and psychosocial assessment underscore learning how to diagnose, manage, and collaborate in clinical decision-making for primary health care delivery. Graduate students in nursing at The University of Vermont who elect the Primary Health Care track focus on the application of nursing theory, developmental theory, pathophysiology, and the research process in their primary health care clinical courses. Students who choose the Adult Nurse Practitioner option will learn techniques of differential diagnosis and clinical primary care management of adults with common, recurring health needs as well as stable chronic disease. The Family Nurse Practitioner option complements the content learned in the first two Primary Health Care courses, preparing students who choose to follow this option with the opportunity for creating expanded primary health care roles with the family.

**Interdisciplinary Opportunities**

Because of the emphasis on collaboration in the nursing program, interdisciplinary activities are woven throughout the curriculum, especially in the clinical courses. The School does not offer an undergraduate degree in interdisciplinary study. Students may pursue a cross-college minor that allows the development of an interdisciplinary focus. Most students, however, do not pursue a minor at this time. Independent studies represent an additional potential mechanism for interdisciplinary work.

**Oversight of Curriculum**

The curricular work of the School is vested in two committees, the Baccalaureate Education Committee and the Graduate Education Committee. Any curricular changes must go through the appropriate committee. The Baccalaureate Education Committee oversees the implementation of the baccalaureate program and recommends changes to it. All new and revised courses must be approved by the Baccalaureate Education Committee and then by the entire Faculty of the School. Any new degree programs must be approved by the Academic Affairs Committee (Faculty Senate), the Provost, the President, and the Board of Trustees. The School conducts evaluation of courses and teaching performance each semester. The School has a program evaluation plan that queries alumnae and alumni at prescribed intervals about the efficacy of the School of Nursing. We also evaluate the efficacy of our advisement process.

The National League for Nursing, the accrediting body for the School, has required outcomes that all nursing units must address. These are critical thinking, communication, therapeutic interventions, graduation rates, patterns of employment, and State Board passing rates. The School selected program satisfaction and service as the two optional criteria to be included in the evaluation. While the School is continuing to hone its definitions and measurement of critical thinking, communication, and therapeutic intervention, we were fully accredited for eight years this year.
Instruction

Students in the School of Nursing use many formats for learning. There are traditional lecture courses; however, emphasis in nursing courses is placed on small group learning. The clinical courses in nursing allow no more than 10 students to one faculty member (National League for Nursing requirement). Students in clinical nursing courses have pre- and post-conferences before each clinical experience led by the clinical faculty.

Teaching is evaluated by students every semester. Teaching is a high priority for the School. In a professional practice discipline, teaching encompasses teaching in the practice environment as well as in the classroom. The prime requisite for an effective teacher is the ability to create a learning environment. This requires that individuals not only possess expertise in the practice arena, but that they have a great interest in teaching and working with students. Teaching can include, but is not limited to, stimulating students' intellectual interest and enthusiasm, role modeling, facilitating students to achieve standards, evaluating student outcomes, and supporting the philosophy and organizing framework of the curriculum. Evaluation of teaching may include self-evaluation, evaluation by a faculty peer, student evaluations, development of new techniques of instruction of instructional materials, and recognition as a distinguished teacher.

In order to enhance teaching ability, the School brings in visiting scholars. Efforts are further supported through the Provost's Office awarding of Instructional Incentive Grants. The University is seeking other ways to enhance this vital aspect of the University community.

Advising

All students (including part-time) are assigned a faculty advisor. Students are expected to see their advisor prior to registering, although with touch-tone registration that expectation cannot easily be enforced. Faculty have regularly scheduled office hours for advisement, and the majority of students take advantage of this opportunity. Faculty advisement is evaluated on a regular basis.

A faculty member is assigned to work with the Admissions Office to ensure smooth implementation of policies regarding transfer students and newly admitted students. This faculty member is the first nursing faculty member students meet and is available to them throughout their educational experience. This greatly supports first and second year students, not yet taking nursing courses, feel they have a connection with the School.

Students "at risk" for academic failure are identified in their first or second year by grades of C- or less in nursing prerequisites. Usually a low grade in the sciences is an indication the student may have difficulty progressing through the nursing courses. These students come to the attention of advisers who then work with them to solve the problem, if possible. Often students have an undiagnosed learning disability, problems in adjusting to being away from home, or time management issues. The School of Nursing Admissions and Academic
Standing Committee reviews (at the end of each semester) all academic records of students who fall below academic expectations. Students are advised in writing if their progression is in jeopardy or placed "on trial." They are provided information on resources within the University that may assist them. In some cases, the student is dismissed.

**Projection**

The School has made an investment in distance learning via interactive television, the World Wide Web, and tele-medicine. We anticipate we can bring programs to the State using these media that we could not afford to develop and/or maintain in other ways, such as through a doctoral program. Our goal is for nurses in the State to be able to access quality professional education within one hour of their homes.
STANDARD 4: GRADUATE COLLEGE

Description

The Graduate College was created as a formal entity in 1952, although the first graduate degree from the University was awarded as early as 1807. The foundation of the College reflected both the growing importance of graduate education within the University and recognition of the need for a single body to coordinate the offering of doctoral and master’s degrees (other than the M.D.) across the institution. The mission of the College was redefined in 1995.

The newly revised mission incorporates five distinctive elements. These are: 1) to provide an environment to support an array of high quality graduate programs at the master’s and doctoral level; 2) to support the intellectual and professional development of graduate faculty and graduate students; 3) to enhance diversity at the University; 4) to promote interdisciplinary and innovative forms of scholarship, research and curricula; and 5) to recognize scholarly excellence.

The College currently offers advanced degrees in a total of 92 programs, with 20 of these at the doctoral level and the remainder leading to master’s degrees. This represents a somewhat different mix than existed a decade ago. Three new Ph.D. programs and four new master’s level programs, including a newly approved Master’s in Physical Therapy degree, have been created. The M.A. degree program in Political Science has been suspended. There have, in addition, been a number of reorganizations over the past ten years. In the College of Education and Social Services, the graduate programs at the master’s level have been completely reconfigured as a result of the reorganization of that College. Additionally, responsibility for the Master’s in Public Administration has been transferred from the Graduate College itself to the School of Business Administration and thereafter to the College of Arts & Sciences. These changes are part of a continuing pattern of evolution in the structure of graduate education at UVM.

The Graduate College had an enrollment of 1170 students in 1997-1998. That number has expanded slightly over the past decade and graduate students now represent an increased proportion of the total enrollment as the full-time undergraduate population has fallen. Over the past decade, the Graduate College has typically awarded between 325 and 400 degrees annually. Last year, the College awarded a record total of 404 degrees — 59 at the doctoral level and 345 at the Master’s level. The largest concentration of enrollment is in the College of Education and Social Services, followed by the Colleges of Arts and Sciences and Engineering and Mathematics. These three units collectively account for two-thirds of all graduate enrollment in the University. Only 6.4 percent of the College’s students are enrolled in inter-disciplinary or cross-college programs.

Graduate College program size is typically small. The average doctoral program has an enrollment of 17.5 students, with approximately three graduates per year; the mean
enrollment in master's programs is about fifteen students, with an average of 4.5 degrees awarded in each year per program. The relatively small size of these programs has both advantages and disadvantages. On the positive side, it generally ensures very close interactions between graduate students and faculty. On the other hand, small size raises the question of whether there is a critical mass in some degree programs.

Governance of the Graduate College is open and collegial. The Graduate Faculty comprise 516 Officers of Instruction and an additional 91 emeriti, drawn from across the university. General meetings of the Graduate Faculty are held at least twice each year. Membership on the Graduate Faculty is initially for a ten-year period upon appointment as an Officer of Instruction and following application by the department on behalf of the new faculty member. Subsequent reappointments are for five-year intervals. Membership qualifications are outlined in Article II of the Graduate College Constitution. Faculty must: 1) hold the highest academic degree commonly attained in their field; and 2) show continued evidence of competent and sustained scholarly and/or creative activity.

An Executive Committee advises the dean on all matters regarding graduate education. It consists of elected and appointed faculty and a graduate student representative, as prescribed by the Graduate College Constitution. The members of the Executive Committee form two standing committees. The curriculum committee reviews all new program proposals and major program changes and evaluates all requests for additions, deletions, and modifications in graduate curricula. The Standards Committee monitors program policies and standards, reviews any student appeals involving program policies and requirements, and reviews all applications for membership on the Graduate Faculty. The Executive Committee, as a whole, has responsibility for the new program review process.

Graduate College staff are responsible for a wide range of functions. For most programs, initial application is made through the Graduate College and two staff members work full-time in processing these materials. Applicants are presently asked to submit all required material under a single cover and this, in combination with the implementation of the BANNER system for student records, has greatly facilitated the timely processing of applications. Individual programs then review their own applicants and make admission recommendations to the College, as well as recommendations on the awarding of Graduate Teaching Fellowships. The College has responsibility for payments to graduate teaching fellows, billing adjustments, the maintenance of graduate student records, the consistent application of College and University academic policies, and the monitoring of conditions of employment. These matters are ably handled by an experienced and professional staff.

There has been considerable innovation in the operation of the College, with an emphasis on more efficient enrollment management and an enhanced consumer orientation. The implementation of the BANNER student information system has allowed much more timely access to graduate student records, from the point of initial inquiry through to the completion of the degree. College staff can now change relevant records on-line. All departments now have access to application and admissions records as soon as they are entered into the system.
A small number of departments handle their own admissions, and selected programs are engaged in a pilot project whereby applicant information is imaged and can then be downloaded. These innovations have substantially improved a process that had been widely criticized in the past.

The College uses GRADNET, an electronic bulletin board, to disseminate information about graduate education and research. A handbook on Graduate Policies and Procedures, updated annually, was initiated in 1993 and provides a concise summary of information relevant to graduate students and faculty. The World Wide Web page, also initiated within the past five years, provides a calendar, application forms, and other information on graduate activities.

The College's operational budget has been sharply reduced in recent years. In FY92, its general fund budget stood at $512,000; in FY98, the college received $421,000. This represents a decrease of 17.8 percent in nominal terms. The reduction of the Dean's position from full-time to half-time and the elimination of the two 0.6-time Associate Dean positions have significantly decreased the opportunity for the College to embark on new initiatives. The initial round of budget cuts also decreased the amount of research support available for faculty from Graduate College sources.

In the past year, however, central administration has decided to restore control of the allocation of Graduate Teaching Fellowships (GTFs) to the College. This replaces a process, in place for more than a decade, whereby the GTFs were allocated to the undergraduate Colleges and Schools to meet their needs for assistance in teaching. This allocation occurred without any direct involvement by the Graduate College and was insensitive to the quality of the graduate programs. A committee is currently working to establish a set of principles that will govern the future allocation of these graduate resources.

The quality of graduate education at UVM is a direct reflection of the quality of the faculty and the strength of research and scholarly activity within the academic units that house graduate programs. This places a high premium on the recruitment and retention of faculty with the strongest scholarly credentials and an interest in graduate education. It also places great emphasis on the collaborative shaping of a vision for graduate education between the departments and Colleges or Schools, whose primary mission is undergraduate education and the Graduate College.

The Graduate College has played a very significant role in reviewing proposals for new graduate programs, in developing innovative approaches to the delivery of graduate education, and in reinstating the process that allows for periodic reviews of existing graduate programs.

All proposals for new graduate programs must be reviewed by the Graduate College's Executive Committee and that body has approved seven new master's and doctoral programs in the past decade. Responsibility for the development of new programs rests principally with the colleges/schools and departments, but the Graduate College is critical in assuring

Standard IV: Graduate College
that any program proposed meets the highest possible standards. This has proved more
difficult in the case of proposals for inter-disciplinary programs, which lack a clearly-defined
model in their development and review.

A key innovation has been the development of Accelerated Master’s Programs (AMP) that
permit UVM students to complete a graduate degree as part of a 3+2 course of study. The
Graduate College has now approved the offering of fourteen AMPs and a further four are in
the planning stage.

The absence of a timely internal review process for graduate programs has been a significant
weakness at UVM. In theory, both undergraduate and graduate degree programs are subject
to periodic review; in practice, such reviews have been sporadic. In the decade prior to 1997,
only two reviews of graduate programs (in Nursing and Historic Preservation) had been
conducted. This problem has now been corrected. Starting in 1997-98 with a review of
master’s-granting programs in the humanities and the social sciences, a simplified self-
assessment tool has been employed to examine the quality of each graduate program. These
reviews will incorporate both qualitative and quantitative elements and embrace throughput
and output measures in addition to the normal input measures. Over a five year interval, all
graduate programs will be reviewed and this process will, importantly, be linked to the
reappointment of graduate faculty.
STANDARD 4: COLLEGE OF MEDICINE

Philosophy

The primary mission of The University of Vermont College of Medicine is to train the health care providers and scientists of tomorrow. Our profession is in the midst of a profoundly changing environment. There is an explosion of knowledge, and there must be new approaches towards the application of this knowledge to better manage the health of the population. The rapidly changing knowledge base and attendant technological innovations will have to be incorporated into the health care system in a time of increasing financial constraints. These are likely national changes that will have profound effects on undergraduate medical education, residency training, and graduate programs in the biomedical sciences.

Flexibility will be required to meet these changes and challenges. We believe that we have developed much of the required flexibility to respond in ways that will provide quality medical education, lead to efficient and economic delivery of health care, and promote biomedical research. To these ends, a new organization has been created. Its purpose is to provide a seamless integration of all of the activities of an academic medical center. The College of Medicine and Fletcher Allen Health Care are key components of the system. The latter is the result of a four-year old consolidation of three local organizations — the University Health Center (our former faculty practice plan), the Medical Center Hospital of Vermont, and Fanny Allen Hospital — into one formal affiliation agreement with the College of Medicine and The University of Vermont.

The strategic intent of the College of Medicine is to be a national leader in medical education and research, built around and integrated with Fletcher Allen Health Care. Our unique opportunity has been, and remains, to accomplish these goals in a very rural environment. We believe we can achieve this because of administrative initiatives in place, a talented and dedicated faculty, a research enterprise remarkable for an institution of its size, and a long-standing reputation among medical students as a user-friendly place that offers a quality education and provides a sense of ownership as well. We can also do this because of our manageable size and high degree of collegiality, allowing us to manage our resources wisely and collaboratively.

Among the specifics that are or will affect our medical students in the immediate and intermediate future are: (1) identification of core competencies expected of all graduates; (2) ongoing monitoring of the curriculum, with an emphasis on integrative curricular approaches that will address new and changing goals; (3) the Vermont Generalist Curriculum, a program for first-year medical students which integrates basic science information and office-based clinical experiences; (4) Area Health Education Centers (AHEC) that markedly expand the opportunities for medical education and training at remote sites throughout the region; (5) the further development of VTMEDNET, a $30M region-wide telecommunications information exchange system that will integrate the Fletcher Allen Health Care information systems into the medical curriculum as well as provide a link to community-based physicians who act as instructors for our students; (6) continuation of affiliation agreement with the Maine Medical
Center; (7) a commitment by the College to increase tuition for enrolled students by no more than the CPI inflation rate, and; (8) initiation of construction of a $25 million research facility in summer of 1999; (9) initiation of construction of a medical education facility in 1999 or 2000; (10) complete the planning for a new ambulatory care facility in 2000.

Description and Projection

Managing change in an academic medical center in a period of uncertainty and fiscal constraint is an extraordinarily difficult task. Nurturing the educational programs is clearly the first priority of the College of Medicine. We view with considerable enthusiasm both the protection and the educational benefits that flow from formal affiliation of The University of Vermont with Fletcher Allen Health Care. The College of Medicine has positioned itself in a variety of ways to best protect its vital missions of medical education and biomedical research.

- **Faculty.** The faculty meet the most rigorous professional expectations. Teaching, research, and service contributions can be fairly characterized as superior and have been judged as such by external authorities. The library faculty make substantial contributions in a variety of ways to all of the missions of the College. The size of the faculty allows for easy and informal interaction; there is ample evidence of extensive collaboration and cooperation. Perhaps the best indicator of the quality of the faculty is the ability of the College to recruit first-class teacher/scholars at any level, from first-time assistant professors to department chairs.

There are 170 tenure track faculty, 127 non-tenure clinical track faculty, and 48 research faculty. In addition, there are more than 1246 non-salaried faculty throughout the region who make critical contributions to the mission of the College.

- **Medical Students and Medical Education.** The number of applications for admission to the College of Medicine has been so large in the past several years (approx. 6300 in 1997) that organizational changes and new staffing have been required. Accordingly, we are able to matriculate a class of 93 students who we perceive will become informed, dedicated, caring physicians. The College has a long-standing record of enrolling men and women on an equal basis and welcomes “nontraditional” students. Attention has been paid to diversity (more than 15 percent of enrollment are ALANA students); there have been positive developments in this area. University of Vermont medical students generally have a very positive view of their education and training. This view is shared by residency program directors who have rated our graduates at the end of their PGY-1 year. Data on 1208 graduates over the period 1978-94 reveals that nearly two-thirds of our graduates are in the top third of their residency peer group.

The recently developed Vermont Generalist Curriculum is a significant addition to the educational program for medical students. This program was developed in response to a stated goal of the College to graduate a significant percentage of physicians who will enter primary care specialties. First-year students are placed into a practice setting where basic science information becomes woven into the delivery of health care to patients. A
three-year $2.7 million grant was awarded to the College of Medicine to fund the Vermont Area Health Education Center. A major focus is training of medical students in community-based physician offices at remote sites throughout the state. The Vermont Generalist Curriculum, Vermont Area Health Education Center, and VTMEDNET, a statewide telecommunications linkage, contribute to a unique combination whose goal is to encourage medical students to enter primary care disciplines.

We are confident that the program leading to the MD degree is a high-quality offering. It is monitored for its content by both standing and ad hoc committees. Medical students submit evaluations for all courses. These are reviewed at both the Department and College level. A newly instituted seminar series “Teachers Teaching Teachers” is aimed at improving the skills of instructors. Teaching is strongly considered in tenure and promotion decisions.

- **Graduate Education.** There is a strong graduate program in the College of Medicine, which is part of the Graduate College. Over a hundred graduate students have College of Medicine faculty as their advisors. More than 90 percent of these individuals are working toward the Ph.D. In a typical year, 15 individuals are awarded either the Master's or Ph.D. in programs critical to the education and research missions of the College. There is also an evolving M.D./Ph.D. program. Faculty members and graduate students from the College of Medicine are active in the graduate programs of the entire University.

- **Graduate Medical Education.** There are strong, fully accredited residency programs in most clinical disciplines. House staff contributions to medical education are substantial, particularly in the Senior Selective Program. Students assign very high marks to the teaching provided by house staff, who now have faculty appointments as Clinical Instructors. Both graduate and undergraduate medical education benefit from the affiliation of the College of Medicine and Fletcher Allen Health Care owing to the commitment to the integration of medical education, research, and patient care.

- **Undergraduate UVM Experience.** The College of Medicine makes a significant contribution to the undergraduate experience at UVM. The College has direct responsibility for more than 15 undergraduate courses offered for multiple Colleges, but most importantly for students in Nursing and Allied Health. In addition, the faculty mentor numerous undergraduate students who elect to do research in the College.

- **Continuing Medical Education.** The Office of Continuing Medical Education is extremely active. Its outreach activities throughout the region are extensive and of very high quality. Interactive telecommunication links among regional hospitals and workshops for primary care physicians serve to enhance their skills in serving as preceptors for medical students are critical activities. Medical students can participate free of charge in workshops and conferences sponsored by the Office of Continuing Medical Education.

- **Clinical Resources.** These are uniformly excellent. There are three major hospital centers available for training our medical students. Fletcher Allen Health Care in
Burlington; the Maine Medical Center in Portland, ME; and the Champlain Valley Physicians Hospital in Plattsburgh, NY. In addition, as noted earlier, there have been several major initiatives taken that result in medical students gaining experience in off-site, often rural, primary care practices.

- **Research.** Research is strong as evidenced by the amount of external support for both basic science and clinical research. The College of Medicine is in the top 25 percent of all U.S. Medical Schools in research grant dollars/faculty member. More than $35 million of extramural research funding is received by the College. In a typical year more than 800 peer-reviewed publications come from the College. Six major national journals are edited here, including *Pediatrics* and *Coronary Artery Disease*. Faculty are internationally recognized and participate in a variety of professional activities at all levels.

Laboratories are well-equipped to carry out cutting-edge research. In addition, consistent with our strategic plan, there are first-class multi-user core facilities housed in the College that have been developed in the past five years. These include the Flow Cytometry Mass Spectroscopy, High Field-Strength NMR Spectroscopy, and Microscopy Image Analysis X-ray Diffraction Facilities.

The research facilities of the College will undergo substantial growth in the immediate future. Final design is underway for a 100,000 square foot research facility with completion scheduled for 2001. A cohesive, cooperative faculty and common research interests, often interdisciplinary in nature, lead to collaborative research activities. There are adequate opportunities for medical students to do research, an MD/Ph.D. program, and excellent graduate programs.
STANDARD 4: DIVISION OF CONTINUING EDUCATION

Introduction

The Division of Continuing Education (DCE) represents the University in serving Vermont and the world through the design, development, and delivery of credit courses, certificates, degrees, residential institutes, workshops, community programs, conferences, videotaped panels, teleconferences, and national satellite broadcasts. In addition, the Division supports UVM with marketing expertise, faculty and staff development, curriculum design, and distance learning technology.

Since FY91, DCE has been engaged in simultaneous processes to identify new educational opportunities, discover and aggregate intellectual resources within UVM and beyond, design and develop programs, deliver and evaluate courses, and effectively represent the University to the entire range of its constituencies, a portion of which have not historically been recognized by the University as central to its mission.

As an income-expense unit, and the largest such entity within UVM, DCE is solely responsible for its own financial health. We must therefore constantly test assumptions, learn from each other, and apply our learning to the next semester, course, conference, faculty hire, market research project, and investment in technology. Without continuous learning and continuous improvement, there is a significant risk of losing the non-degree students who, with each registration or fee payment, make a decision to attend UVM.

Description and Appraisal

Academic Programs/Student Services

Academic Programs and Student Services are the units responsible for the design, delivery, and evaluation of all credit courses offered through DCE and, beginning in Fall 1997, new UVM faculty-taught, non-credit Community Programs. Working in partnership with Student Services, the Academic Programs unit conducts market research, negotiates with deans, department chairs, and individual faculty, and works with UVM administrative units to select and deliver the nearly 1,000 credit courses offered in Vermont each year by the Division.

To offset the unpredictability of non-degree student enrollment choices, Academic Programs implements several specialized programs conceived, developed, and managed by the DCE’s Student Services unit. These include the highly successful Guaranteed Admission Program (GAP), the competitive Post-Baccalaureate Premedical Program, and two important credit certificates: Gerontology and Computer Software. In each of these sequences of courses, the individual student counseling provided by DCE Student Services aligns with Academic Programs’ efforts to ensure appropriate curriculum availability. Together with Student Services, our Academic Programs unit serves as the Dean's Office staff for several thousand UVM non-degree students each academic year.
In addition, Academic Programs and Student Services work closely with DCE's Statewide Programs unit, our three regional centers in Brattleboro, Montpelier, and Rutland, and the Distance Learning Network (DLN), to support off-campus students in the provision of degree and non-degree curricula. Academic Programs and Student Services also promote UVM academic programs and outreach missions serving the educational needs of private citizens and corporate partners across the state. Academic Programs and Student Services also join forces to design and manage the UVM Summer Session, which includes among its nearly 500 credit courses many residential summer institutes, international programs, and special programs for high school students. During the UVM Summer Session, DCE Academic Programs and Student Services provide the Dean's Office function for about 1,500 matriculated UVM students as well as over 2,000 non-degree students.

Professional Programs

The DCE unit responsible for assessing research strengths, audience demand, and forecasting professional learning requirements is the department of Professional Programs. This group represents an emerging educational role for UVM and consists of specialists in curriculum design, program development, market research, advertising, logistics coordination, financial services, telemarketing and registration, customer services, and project management. Professional Programs is evolving rapidly to become a new type of academic unit in which highly qualified non-tenure track faculty work to create "streams" of educational products for large national audiences of university graduates concentrated in such job classifications and professions as college/university administration, municipal management, healthcare management and delivery, and business/industry management.

In very significant ways, Professional Programs at UVM reflects what we believe is a model for the research university of the 21st Century. Its faculty are drawn not just from UVM but the most respected colleges and universities in the country and, equally importantly, from among practitioner ranks. Thus, in a stream of educational products, produced and delivered across three to five years, UVM Professional Programs will feature hundreds of nationally recognized experts teaching via regional/national conferences, satellite-transmitted short courses, videotaped seminars and instructional series, CD-ROM formatted products, and intensive residential institutes. In designing and producing these streams of educational programs for entire segments of a national audience, UVM is providing a model for and demonstration of how a university can provide purposeful life-long education for alumni and their college-educated peers nationally and globally. As a result of these efforts, UVM has captured a commanding presence in this new market niche and is recognized nationally as a leader in creating a new role for higher education.

By definition, the output of DCE's Professional Programs unit is not traditional higher education coursework, but rather educational products customized in content, medium, and distribution for targeted professional constituencies. In FY98, for example, the unit:

- Launched a three-part video series, 20-minute introductory video, and 180-page educational resource manual with cutting-edge knowledge of the performance measurement movement underway in the public sector (local,
state, and federal government). This series, *Managing for Results: The Key to More Responsive Government*, has positioned UVM as a national leader in education for public administrators and will return an investment over a two year period in excess of $500,000.

- Introduced to the healthcare market both a 22-minute video and four-day intensive training seminar on *How to Build a Telemedicine Program*. Both products are unique to the field and the first of their kind in servicing healthcare administrators and clinical managers who must develop competent technology infrastructures to ensure the viability of their health organizations and maximize patient care. These products, along with a forthcoming CD-ROM, build on the strengths of UVM and Fletcher Allen Health Care (FAHC) recognition as one of the nation’s top ten telemedicine sites.

- Launched a four-part series for the nursing profession on continuous improvement, taught in a short course format, with high interactivity and a feedback mechanism to ensure audience participation during and between broadcasts. This product continues to keep the University’s name in the forefront of both nurse managers and education directors in hospitals nation-wide.

- Completed our fifth national satellite broadcast developed to assist higher education administrators improve their understanding of legal, ethical, and managerial issues which impact their capacity to thoroughly represent and in some cases protect their institutions or the rights of their students/employees.

In addition to these new products, Professional Programs provides UVM with highly competitive and highly regarded Conferences and Institutes services in New England. Thousands of Vermonters and New England visitors attend these professional programs on the UVM campus each year. Among the events are the “Mastering the Maze” UVM staff development series (managed by DCE’s Staff Development and Training unit) and the regionally acclaimed Aiken Lecture Series.

**Distance Learning Network**

The Distance Learning Network is the UVM unit responsible for the design, purchase, installation, operation, maintenance, and repair of teleclassrooms, studios, and transmission/reception equipment on our campus and across the state. Further, it provides intensive faculty development and curriculum design activities for both Academic Programs and Professional Programs.

The investment made to date in DLN amounts to slightly more than three million dollars. DCE was authorized to borrow up to $1.9 million from the appropriate lending institutions and has received about $1 million in federal funds and private gifts. Repayment of our loans
and the generation of revenue in excess of operating costs will result from the activities of Academic Programs, Professional Programs, and our Statewide Programs units. Our business case anticipates significant revenue from two sources: national programs for professionals and statewide credit registrations.

To date we are experiencing mixed results. While our national television programs are earning revenue in excess of costs (and promise rapid growth), we are hampered by the lack of a reliable down-link network across the country. Meanwhile, a modest down-link network was constructed in Vermont with sites in the state's high schools. Certain UVM courses designed to be utilized as Advanced Placement (AP) are provided free of cost to these high schools — a DCE activity which involves marketing, curriculum development, faculty training, technology, and end-site logistics and services. Moving beyond secondary schools to provide a broad UVM-based education in Vermont communities has proven challenging for a number of reasons. Research to date suggests that limited population size makes development of a critical mass of individuals interested in any one subject difficult. Data also suggests that UVM DLN tuition rates, driving distance from a DLN-site high school, the perceived inconvenience of taking a DLN class in a high school, and technology limitations and problems have constrained our ability to stimulate credit registrations in the volume necessary to meet our statewide educational objectives.

Greater success has been achieved in delivering an increasing number of credit courses on our point-to-point, land-line teleconferencing system, both to our DCE Regional Centers, to the Vermont Interactive Television system (VIT), and to our site at the Essex Junction, VT IBM facility. While there is strong likelihood that other industrial sites will be added to our point-to-point network, these courses will unfortunately never be able to generate sufficient revenue to pay down our DLN loans. Finding the key to a satellite (point/multi-point) curriculum delivery system, therefore, remains our primary priority.

Statewide Programs

To provide coherent management to our several off-campus programs and to build a "one-stop- shopping" point of contact for all adult learners throughout the state, DCE created the Office for Statewide Programs. Ongoing responsibilities include the coordination of our three Regional Centers, the Lane Series, and our multi-faceted relationship with IBM and other industries. Further, our Statewide Programs Director serves as the principal point of contact with the College of Education and Social Services (CESS) and its School Development Institute (SDI). By adding our Regional Center staff and marketing strength to the efforts of SDI, CESS faculty (content designers) and UVM-school administrator relationship management efforts, Statewide Programs has become a critical element in the delivery of UVM resources to the Vermont educational system.

Similar program oversight, off-campus customer service and on-campus integration with Academic Programs/Student Services, and the DLN have resulted in a steady expansion of course and degree offerings to the IBM site. Most recently this persistent effort has resulted in the delivery of the School of Business Administration (BSAD) MBA core courses being offered via point-to-point teleconferencing to a cohort of 14 graduate students at IBM. Here,