UNH Discovery Program

Report of the
General Education Study Committee

March 2002

General Education Study Committee

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Executive Summary

The General Education Study Committee (GESC) is an ad hoc committee appointed by the Faculty Senate in 1999 to evaluate the current General Education Program and to make recommendations regarding potential changes in the program. The report is the culmination of a lengthy process of meetings and deliberations. This Executive Summary highlights the process and the Committee's major recommendations.

The committee was appointed in 1999. During academic year 2000-2001, the committee met with a variety of groups and individuals closely tied to the existing General Education Program. In addition, the Committee constructed Task Forces that examined particular topics for the General Education Study Committee. Focus groups of students in the various colleges were also conducted by members of the GESC Committee. Three University forums at UNH, one at UNHM, and a presentation to the Faculty Senate were held to provide faculty input to the committee's conceptual framework. During the summer of 2001 and fall of academic year 2001-2002, the GESC continued to meet with multiple groups and began to formulate a proposal for specific changes. A draft report was issued in November of 2001 and served as the basis for a series of six open University forums (November 28th, December 6th, December 12th, December 17th, January 29th, and February 6th) at UNH and two at UNHM (December 19th and January 30th). There were also two meetings of the Deans and Chairs devoted to the recommendations of the GESC. In addition, the committee received written comments from a number of members the community. A second draft, including major changes, was circulated to all members of the faculty. Additional open forum meetings were held on March 12th and March 14th at UNH and one meeting at UNHM on March 12th to review the changes and receive other comments. There was also a special meeting of Deans and Chairs on March 13th to review the second draft. This report is being forward to the Faculty Senate for its deliberation. The GESC appreciates all the faculty, staff and student input that it has received in this process. Academic debate is a vital and healthy part of the University process.

The GESC's report is the first comprehensive review of the UNH General Education program since the current system was adopted in 1982. The Committee believes that we can build upon the strengths of the existing system. The existing General Education Program requires all UNH students to study a wide variety of disciplines in at least some depth. Writing across the curriculum has strengthened General Education since its initial adoption in 1982. Unlike at many other universities, the General Education program has attracted many senior faculty members as instructors. The current system provides the baseline for the changes suggested below.

However, we believe the system has weaknesses that can be addressed by specific reforms. We have based our recommendations on feedback from both students and faculty at UNH, on information from national reform efforts throughout higher education, and on UNH specific data. The major goals of these changes are to (a) strengthen the general undergraduate academic climate, (b) bring greater attention on the first year experience, (c) encourage interdisciplinary/cross disciplinary activities, and (d) focus more attention on integrating experiences. We recognize that any system of general, liberal arts education will be the result of compromises among the competing claims on faculty, students, and resources. While our deliberations have not always been easy, we are in agreement. We are convinced that changes along the lines suggested in this report will strengthen undergraduate education at UNH and make it a more engaging and exciting learning community. We also believe that such reforms will attract external resources to the University and make the University stronger in terms of recruitment and retention of undergraduates as well as faculty. If approved, the Provost has already received $100,000 from private gifts and discretionary funds to support faculty development for the First Year efforts in the Discovery Program. An additional $100,000 would be requested for each of the next two years. External foundations that have an interest in reforming general education will also be solicited for support. We

want the common liberal arts education that all our students should have to be a vital part of their university experience, something to look forward to, not something to "get out of the way". The objective of the Discovery Program is to develop competent and confident learners for a lifetime of discovery.

Recommendations for Discovery

- ***First Year***

In order to build a greater sense of UNH as a community of learners among first-year students and to better prepare new students for learning, we recommend a strong academic focus during the first year.

(1) Assessment of Mathematics. During orientation (or for UNHM students during their first year) students would be given an assessment of mathematical skills for advising purposes. The Department of Mathematics will make a recommendation to the Discovery Committee regarding the appropriate measuring instrument(s). SAT/AP scores can be used to satisfy this requirement. Students not meeting basic levels of mathematical competency would be required to pass a re-take of the exam or a course designed to achieve that level. This course would not fulfill the Discovery Quantitative Reasoning requirement. Prior to registering for a Quantitative Reasoning course, students must have met the basic level of mathematical competency.

(2) Assessment of Information Technology. Students would be given a placement examination regarding their ability to demonstrate basic competency in word processing, spreadsheets, library, and web access. The results would be used to advise students into modules funded through the student computer technology fee to improve their skills. The UNH Academic Computing Advisory Committee and UNH Library would be asked to develop recommendations to the Discovery Committee.

(3) University Dialogue/Town Meetings. First year students would be assigned a book or set of readings on a particular theme. These will be the foundation for a series of student/faculty/staff discussions during orientation, a one credit (pass/fail) course in the fall semester, and integrated co-curricular activities such as speakers series, films, etc. that are related to the topic. Other Discovery courses, including English 401, would be encouraged to build upon this theme. A faculty advisory group to the Discovery Committee would make recommendations regarding the readings for each year.

(4) English 401. English 401 would continue as a required First Year course. One of the purposes of English 401 is to serve as the assessment of writing at UNH. Use of the Writing Center should be used early in the student's experience at UNH. Another University Committee is currently evaluating the specific content of English 401. We believe that English 401 should be more closely and uniformly tied with the Library and accessing research materials. We also recommend that English 401 have greater consistency among sections.

(5) Inquiry Course. During the First Year and in the opposite semester to that for English 401, students would be required to take a four-credit Inquiry course. This course is to be interdisciplinary, team-taught where possible, have a relatively low student/faculty ratio, and be designed to introduce students to the processes of inquiry and research. Examples of such courses could be "Humanities and the Sciences," "The Industrial Revolution: Science and Society Reconfigured," "Social Capital and Healthy Communities," "The Global Market," and "Genetic Engineering: Science, Ethics, Government", Youth and Aging", or "The Deeper Meaning of Eating". Approved courses must be offered for a minimum of three years, but may be approved for additional years.

An existing Undergraduate Experience Committee has been appointed by the Provost to examine non-course activities in the first year that may complement the First Year of the Discovery Program.

- ***Discovery***

In addition to English 401 and the Inquiry Course, students would be required to take a minimum of seven courses to fulfill all of the following ten areas. A Discovery Course may be approved to satisfy the requirements of up to two categories plus a Writing Intensive (WI) designation. For example, a history course that examines the role of industrialization and its impact on society might meet the Historical Perspectives requirement and the Technology, Environment and Society requirement. A course on the politics of race relations in the United States might be approved for both the Social Science area and Social Identity and the Individual area as well as be designated as Writing Intensive. A course on African agrarian economic development could potentially meet the requirement for Biological Sciences and Foreign Culture. No more than two of these courses can be taken in any one academic department. A student would need to take a minimum of seven courses to meet the Discovery Program. To provide greater depth in the treatment of a particular topic, the Committee encourages the use of linked courses (linked concurrently or sequentially) whereby two courses may cover the same topic from different perspectives. This arrangement will provide students and faculty with maximum flexibility in meeting these requirements. For example, a course meeting the Biological Sciences and Historical Perspectives requirements ("History of Western Medicine") could be linked to a course covering the same topic from a Social Science perspective ("Doctoring in the 21st Century").

1. *Quantitative Reasoning*. Having demonstrated mathematical competency through the University assessment process, students would be required to satisfy quantitative reasoning that is broader than numeracy. The Committee is persuaded that a course in logic may meet the expectations for Quantitative Reasoning.
2. *Biological Science*. Students would be required to fulfill a biological sciences requirement. This may or may not have a laboratory section, but all students must have at least one science course that has a biological or physical sciences laboratory section.
3. *Physical Science.* Students would be required to fulfill a physical sciences requirement. This may or may not have a laboratory section, but all students must have at least one science course that has a biological or physical science laboratory section.
4. *Historical Perspectives*. This area provides students with knowledge of the past, historical inquiry, and modes of historical thought.
5. *Foreign Culture*. This area provides students with an examination of multiple or particular foreign cultures and/or non-English languages.

6. *Fine and Performing Arts*. This area provides students with an understanding of the visual or performing arts.
7. *Social Sciences.* This area provides students with theoretical paradigms, analytical methods, and applications of the social sciences to social issues.
8. *Humanities.* This includes the former category of "Works of Literature, Philosophy, and Ideas" and is focused on central works of literature and/or ideas, or historically important primary texts.
9. *Social Identity and the Individual*. Social Identity and the Individual requires a scholarly study of social identity and the individual as these are shaped by race, color, religion, gender, ethnicity, age, disability, and/or sexual orientation. This area focuses on the tensions and responsibilities between individuals and society. While the central focus of this area is on the United States, comparative approaches are encouraged.
10. Technology, Environment, and Society. This area focuses on the scholarly study of the interaction of human society and the environment and/or the impact of technology on society.

- **Integration with the Major**

Writing Across the Curriculum In addition to English 401, the Writing Intensive (WI) requirement would continue to be in place. There would remain a requirement for English 401 and three additional courses, at least one at the 600 level and one within the student's major. Writing intensive (WI) courses could be courses within the Discovery program or the major.

Capstone Experience. In addition to the first-year Inquiry Course that will focus on the processes of inquiry and research, the GESC recommends that all majors provide students with a capstone experience. The particular requirement is left to the Department; it may be a single requirement for all majors in the Department or a choice of requirements. The capstone could be a course, a seminar, a research project, a colloquium, an internship, a performance, or another activity that the faculty believes brings together the student's learning within the individual courses of the major and ideally reflects to some degree the role of the major in society. The Committee encourages Departments to take advantage of the research orientation and capacity of UNH. This capstone experience should, however, give students an opportunity to integrate the content of the major with the processes of inquiry and place the major within a context of complex scholarly, social, ethical and intellectual endeavors.

- ***Administrative Support***

We recommend the creation of a UNH Discovery Program Committee representing faculty from the various schools and colleges as well as appropriate administrative representatives to assure smooth implementation. The Committee would be composed of two representatives from the College of Liberal Arts and one from each of the other Schools and Colleges. Each School and College will determine its own selection process. Individual committee membership would be for a period of three years. There would be a sequencing of terms to minimize turnover in any given year. Faculty could serve more than one term. In addition to college/school representation, the Vice-Provost for Undergraduate Studies and the Vice-Provost for Enrollment Management would serve on the Committee. The Director of the UNH Discovery Program and the Director of the Writing Across the Curriculum Program would be standing members of the committee. The initial charge for this committee will be to evaluate all courses proposed by academic departments for acceptance into the UNH Discovery Program. In addition, this committee will provide continuing oversight and evaluation of all Discovery courses and develop appropriate policies for implementation. Courses

would be regularly re-evaluated for continued inclusion in the Discovery Program. The existing University Writing Committee would be maintained but integrated into the Discovery program. The office of the Provost & Vice President for Academic Affairs will provide staff support.

In order for this program to retain a sense of mission and organization, it must have visibility and continuity of leadership. One of the criticisms of the implementation of the 1982 General Education revision has been that there has been little administrative leadership and, especially, a lack of support for faculty development and evaluation. The GESC believes that there must be a person who is responsible for representing and serving as an advocate for this important element of undergraduate education within University discussions. The GESC recommends that there be a faculty member appointed to Office of the Provost & Vice President for Academic Affairs to be the Director of the UNH Discovery Program for a period of three years. The Director will be responsible for representing, implementing, and administering the UNH Discovery Program. This will be a full time position for at least the first two years of implementation. Implementation will have to address a fair method for allocating student credit hours and tuition revenue for team taught courses when faculty members cross RCM units.

- **Financial Support**

The Discovery Program will be a central focus of the implementation of the University's Academic plan and will be used in part to govern the decisions regarding academic programming. If approved, the Provost has agreed that support for the Discovery Program would be the highest priority for University discretionary funds. For example, $100,000 from private gifts and discretionary funds has already been designated to support faculty development for the First Year Experience next year and in each of the following two years. There will be core support for the Director of the Discovery Program. In addition, existing resources for classroom and computer technology, lecture series, and the Teaching Excellence Program will be focused on supporting the Discovery Program. Appropriate support will be provided to faculty for participation in the University Dialogue and the development of student assessments. The Provost has also agreed to fund two new University awards for faculty teaching in the Discovery Program. We recognize that the recommendations in this report will probably result in a reallocation of existing resources in order to focus more resources on the first and senior years.

Faculty Development money could be available as early as the summer of 2002 to begin new course development. Faculty applications for course development will be sent to the Director of the Discovery Program through the faculty member's Dean.

- **Implementation and Evaluation**

The UNH Discovery Program will be phased in over a period of time to minimize disruption and to provide sufficient lead-time for development. Those aspects requiring minimal financing or organizational change can be implemented before those that require more extensive investment/development.

The UNH Discovery Program will be re-evaluated after a five-year period of implementation. The UNH Discovery Program Director will make annual reports to the Faculty Senate.

Evaluation is a central component of any program. In addition to periodic re-evaluations of approved courses, the Discovery Program will engage in a continuing evaluation of the program from student, alumni, faculty, and administrative perspectives. This evaluation will focus on student outcomes in courses and areas. A more thorough review of the program would occur every five years to make sure that the program is meeting its goals and operating smoothly.

UNH DISCOVERY PROGRAM

Student Assessments

Mathematics
Information Technology

First Year Experience

English 401
University Dialogue (one credit)
Inquiry Course

Discovery Areas (minimum of seven courses covering all ten areas)

Quantitative Reasoning
Biological Sciences
Physical Sciences
Historical Perspectives
Foreign Culture
Fine and Performing Arts
Social Sciences
Humanities
Social Identity and the Individual
Technology, Environment and Society

Major

Writing-intensive Courses (English 401 and three courses with one at 600 level and one in major)
Capstone Experience

GENERAL EDUCATION STUDY COMMITTEE[1]

Membership

Heather Barber, Ph.D., Associate Professor of Kinesiology, School of Health & Human Services

Carole K. Barnett, Ph.D., Associate Professor of Management, Whittemore School of Business & Economics

Joanne Curran-Celentano, Ph.D., Associate Professor of Nutrition Sciences, College of Life Sciences & Agriculture

Thomas M. Davis, Ph.D., Associate Professor of Plant Biology & Genetics, College of Life Sciences & Agriculture

John R. Ernest, Ph.D., Associate Professor of English, College of Liberal Arts

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Victor A. Benassi, Ph.D., Vice Provost for Undergraduate Studies and Professor of Psychology

[1] The Committee would also like to thank the contributions of Paul Brockelman, Steve Fink, and Christopher Bauer who served for extended periods of time on the GESC Committee.

UNH DISCOVRY PROGRAM

INTRODUCTION

The University of New Hampshire (UNH) is a land, sea, and space grant university with a long tradition of emphasizing the importance of a liberal education. Since its beginning, UNH has tried to maintain a balance between applied and professional education and the liberal arts and sciences.[2] The last full-scale review of the General Education Program at UNH came with the 1982 report to the Academic Senate.[3]

The proposals contained in the present report are within the tradition of the University's programs in liberal education and also reflect changes in the University, its environment, and national trends in general education reform. Within the University, the past twenty years has seen a tremendous growth in funded research. Research universities as a whole have come under criticism for their lack of attention to undergraduate education. However, the University of New Hampshire has remained primarily an undergraduate institution that provides professional programs in a variety of areas as well as education in the liberal arts and sciences. The definition of what constitutes "general education" has also changed over the past two decades. Twenty years ago the personal computer was just making its way into academics and the professions. Today it is an essential educational and analytical tool and a gateway to a new source of information. There have been changes within the state of New Hampshire. The state's population has become more diverse. Globalization has become increasingly important to the state's economy. These and other changes point to the need to re-evaluate our general education program and make changes where necessary. There is no perfect general education program that is right for all time and for all institutions. General education varies considerably based upon an institution's mission, strengths, size, and philosophy. While one does not change general education for change's sake, it is also not a program that can be frozen in time. It is within this spirit that the General Education Study Committee engages the UNH academic community in a discussion of some proposed modifications of our existing program.

FACULTY SENATE CHARGE

The current framework for the UNH General Education Program is based on a distribution requirement whereby students select ten courses from a list of 372 within eight specific categories: (1) Writing Skills, (2) Quantitative Reasoning, (3) Biological Science, Physical Science, and Technology, (4) Historical Perspectives, (5) Foreign Culture, (6) Fine Arts, (7) Social Science, and (8) Works of Literature. This program was based upon the recommendations from the Undergraduate Curriculum Review Committee's report of 1982.[4] That process was in response to a charge by the Academic Senate in 1978 to "reconsider, thoroughly and fundamentally, the aims, methods, and patterns of undergraduate education at the University of New Hampshire." It was implemented with the class entering UNH in the fall of 1984. The University's General Education Committee is responsible for the administration of the program. In 1995 the Faculty Senate modified the General Education Program by adding the new

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[2] *General Education: A Report of the Undergraduate Review Committee*, 1982.
[3] *General Education: A Report of the Undergraduate Review Committee*, 1982.
[4] *General Education: A Report of the Undergraduate Review Committee*, 1982.

"University Writing Requirement". Students must take three Writing-intensive courses (at least one in their major and one at the 600 level or higher) in addition to English 401.

Since the basic framework of the General Education Program has been in place for 19 years and many colleges and universities have recently been modifying their General Education requirements, the Faculty Senate felt that it was an appropriate time to review the UNH Program. On February 22, 1999 the UNH Faculty Senate passed a motion from its Academic Affairs Committee establishing the General Education Study Committee (GESC). This Committee is comprised of twelve faculty members representing each of the six schools/colleges. The Agenda Committee of the Faculty Senate appoints members to the committee. The GESC Committee is a special committee of the Faculty Senate. The GESC receives support from the Provost's Office through funding from the Elliott Fund. The charge for the GESC is to (1) undertake a review of the existing UNH General Education Program and (2) based upon its review; recommend to the Faculty Senate a revised or new General Education program for UNH. To assure coordination with other planning efforts, the GESC is represented on the Provost's Academic Planning Steering Committee. Members of the GESC have attended national workshops and meetings to learn of national trends and models.

The GESC formed Task Forces to expand its knowledge of specific issues. The Task Forces have been a rich and vital link between the GESC and other faculty in the university. They were designed to help the GESC explore key clusters of ideas rather than to make specific recommendations for modifying specific components of the current General Education program. Over fifty faculty members contributed to these Task Forces. These Task Forces included:

- First Year Experience--John Ernest, Chair
- Quantitative Studies--Karen Graham, Chair
- Science--Chris Bauer and Tom Davis, Co-chairs
- Technology--Joanne Curran Celentano, Chair
- Ethics--Paul Brockelman, Chair
- Service Learning--Stephen Pugh, Chair
- Diversity--Peggy Vagts & John Ernest, Co-chairs

These Task Forces provided valuable input to the GESC. In addition, the GESC has met with a variety of organizations and individuals deeply involved with the current General Education Program, including representatives from the Writing Center, the Honors Program, Teaching Excellence Program, Academic Standards and Advising Committee, University Advising and First Year Programs, Deans and Chairs, and other groups. There has been representation on the GESC from the University of New Hampshire General Education Committee as well as the College of Liberal Arts General Education Committee. Members of the GESC have met with student focus groups within the various colleges to receive suggestions and ideas. During the spring of 2001, the GESC sponsored four general faculty meetings, three at UNH and one at UNHM to provide input in terms of the evaluation of the current system and the assumptions and frameworks being used by the GESC. The GESC issued a Draft report on November 27, 2001 and held additional meetings with multiple groups such as the Deans and Chairs, the General Education Committee, the Writing Committee, and other groups. The draft report was the basis for eight University open forums, six at UNH (November 28th, December 6th, December 12th, December 17th, January 29th, and February 6th) and two at UNHM (December 19th and January 30th). This report has been circulated to all members of the faculty for final comment and is now submitted to the Faculty Senate for its approval following University governance procedures. The GESC appreciates all the faculty, staff and student input it has received in this process. Academic debate is a vital and healthy part of the University process.

UNH GENERAL EDUCATION

When the General Education program at UNH was adopted in 1982, it was reflective of the types of programs being adopted in other universities.[5] The current model can be described as a distributive model with a fairly broad distribution. The basic change in General Education after 1982 was from a model with hundreds of courses and few categories to one of hundreds of courses with a larger number of categories. The current program requires students to take ten courses within eight categories plus three additional writing across the curriculum courses. The adoption of the current model encouraged the development of General Education courses from faculty and departments in the professional departments and schools.

The assumptions of the 1982 Committee were as follows:

1. General Education ought to be a challenging and stimulating intellectual experience distinct from both high school work and preparation for a vocation or career.
2. Rationality and coherence in a curriculum do not require uniformity, but it necessitates something more than a random selection of unrelated courses. There does not have to be one standardized curriculum for all, but choice ought to be limited to courses in specific categories that seek the same explicit goals and objectives.
3. Some prescription is necessary because meaningful choice is based on adequate information and understanding. Most of our undergraduates have not been sufficiently exposed to the range of the intellectual world in order to know their true needs and interests.
4. Most people either encounter certain areas of knowledge while an undergraduate or never become acquainted with them at all. Learning may not end with commencement, but a specific kind of learning does end there for most of us. If not as an undergraduate, where else will one be introduced to a sophisticated understanding of literature and ideas, social and philosophical perspectives, fine arts, foreign cultures, historical perspectives, science and technology, and quantitative reasoning?
5. General Education courses need to balance subject mastery with how knowledge is acquired, verified, utilized, and communicated. General Education ought to stress how we cope with new knowledge as the need arises. Central to General Education, therefore, is the acquisition of those attitudes and skills that make continual learning probable.[6]

This report of the GESC builds upon the ideas and ideals of the 1982 report.

Since the last review of UNH's undergraduate program in 1982 much has changed in higher education, and of course at the University of New Hampshire. The Cold War divided most of the world. Genetic engineering was science fiction. Rap did not exist as a form of musical expression. The Internet was not a popular source of information. Blackboard used chalk instead of the Internet. One of the major changes at the University of New Hampshire since 1982 has been the increased role of research. UNH currently receives about $80 million of externally funded research and is now classified as a Carnegie "Research Extensive University," the highest level of a research university. As a land grant, sea grant, and space

[5] *General Education: A Report of the Undergraduate Review Committee*, 1982.
[6] *General Education: A Report of the Undergraduate Review Committee*, 1982.

grant university, UNH has had a strong tradition of assuring that the three traditional areas of teaching, research, and service complement rather than compete with each other. While expanding the level of research, UNH has maintained its predominant focus on undergraduate education while it has nurtured selected Ph.D. programs and a growing number of professional graduate programs.

The common pursuit of knowledge unites those within a research university, whether they are professors or first year students. The vehicle for this discovery is research. As UNH has expanded its research capacity, it has successfully avoided many of the shortcomings of undergraduate education at research universities as cited by Ernest Boyer's important report, *A Quest for Common Learning: The Aims of General Education*[7]. For example, one of the hallmarks of UNH undergraduate education has been the active involvement of undergraduates in research; that is one of the major recommendations of the Boyer Report. However, other recommendations of the Boyer Report are not reflected in the current undergraduate experience at UNH.

In examining the current General Education program as implemented at UNH, the GESC concluded that there were both strengths and weaknesses to the existing program as it was implemented and evolved.

Strengths and Weaknesses of the UNH General Education Program

The existing General Education establishes a wide distribution of requirements among the traditionally required areas of the arts and sciences. It tends to focus on introductory courses requiring no prerequisites, encouraging students to complete General Education courses in the first two years. As introductory courses, they often introduce students to potential majors; this is especially beneficial for undeclared students. However, one adverse impact is that General Education courses often have a mix of majors and non-majors. Depending on the course this can create great variation in student expectations, abilities, and aptitude. Further, General Education courses that fulfill major requirements tend not to be interdisciplinary, despite the increased importance of interdisciplinary research and teaching.

The fact that General Education is concentrated in the first two years is reflected in the frequently heard phrase repeated by students, advisers, and even faculty, "Get your General Education courses out of the way". The implication is that General Education is "in the way of" more important learning and is quite separate from the major. In addition, the name itself implies a somewhat lower level of education. As a result, student expectations are low for General Education courses (thus the other frequently used complaint on student course evaluations: "This is too hard for a General Education course"). This is complicated by the fact that there is not a widely accepted or common understanding, either by students or faculty, of what constitutes General Education at UNH

Unlike at many other research universities, General Education courses are not predominately taught by graduate research assistants. In collecting information on existing practices, the GESC found a surprising number of Associate and Full Professors teaching General Education courses at UNH, despite the fact that there are no institutional rewards for teaching such courses.

[7] Boyer Ernest L. and Arthur Levine, A Quest for Common Learning: The Aims of General Education (Washington, DC: The Carnegie Foundation for the Advancement of Teaching).

In our focus groups, students perceived English 401, with its small size and use of student conferencing, as a positive. The English 401 model has been adopted by other institutions. English 401 is the only common course taken by all UNH students. Writing has been strengthened recently through the addition of the Robert Connors Writing Center and the requirement for writing-intensive courses. The Writing Center has recently been reorganized and placed in the office of the Vice President for Academic Affairs. The Writing Center is a valuable resource for both students and faculty.

While many General Education classes are small in size and taught by Full Professors, there are also a few large section courses that are taken by a high percentage of students to fulfill particular General Education categories. One of the criticisms of the existing General Education program is that it lacks coherency and does not have an integrative experience. In addition, the existing program has no clear beginning or end.

A common faculty criticism of the existing system is that from the beginning it has lacked administrative support, especially in terms of providing faculty development. The program belongs to everyone and to no one. There is no central spokesperson for General Education, other than a University General Education Committee. There has been limited money for faculty development of General Education courses or technology to make them more attractive to teach. The exception to this has been the University Honors Program providing some modest faculty incentives to teach General Education courses.

In terms of evaluation, there has been no systematic review as to whether or not the General Education program has been meeting the objectives initially established for it. In addition, courses approved for General Education are not periodically reviewed to see if they maintain the elements essential for a General Education experience in that category. As instructors and course syllabi change, there is no re-examination of the course to assure that a course is meeting the expectations of a General Education course.

The existing General Education program is simultaneously flexible and too rigid. While there are hundreds of courses within the eight required distribution areas, most are introductory courses that may not be suitable for non-traditional students or for well-prepared students who wish to go into greater depth in a particular area by taking a more advanced course. General Education courses do not generally push students outside of their comfort zones. The existing model also equates General Education with a course; experiential learning is not included as a possibility and every area of study requires its own course. Departments are allowed to double count courses for General Education and the major. This exacerbates the problem of having a mix of majors and non-majors in differential aptitudes, interests, and desired course outcomes. On the Manchester campus, there are a limited number of courses that can be offered to meet General Education categories, resulting in limited student choice.

Although the Academic Senate passed a diversity requirement for General Education in 1991, this has not been implemented. While New Hampshire remains one of the least diverse states in the country, we are educating our students to participate in a national and global economy. It is, if anything, more important than ever that students be able to recognize and appreciate common and differing perspectives within our society.

No plan for change can fix all these problems. To some extent we must recognize that there are tradeoffs for different fixes. Increasing breadth usually comes at the expense of depth; increasing depth usually comes at the expense of breadth. An increase General Education requirements generally comes at the expense of the major or electives where the student is able to take courses for personal interest, exploration, and self-development. With the continuing explosion of knowledge, academic departments

increasingly want to add courses to their major requirements. This has led to the existence of some UNH majors with no opportunity for student electives. There is no perfect General Education program; each institution must select those elements that best reflect the goals of general education, the mission of the institution, and its fiscal realities.

GENERAL EDUCATION REFORM

A new wave of General Education reform is taking place in higher education around the country. One of the major prompts for the current reform effort was the publication of the Boyer Report, *A Quest for Common Learning: The Aims of General Education*.[8] This document has stimulated reform of General Education, most notably among the research universities. The major recommendations appear in the Boyer Commission on Educating Undergraduates in the Research University, Reinventing Undergraduate Education: A Blueprint for America's Research Universities <http://notes.cc.sunysb.edu/Pres/boyer.nsf/>. Its major recommendations include:

1. Make research-based learning the standard
2. Construct an inquiry-based freshman year
3. Build on the freshman foundation
4. Remove barriers to interdisciplinary education
5. Link communication skills and course work
6. Use information technology creatively
7. Culminate with a capstone experience
8. Educate graduate students as apprentice teachers
9. Change faculty reward systems
10. Cultivate a sense of community

Program Principles

Using the Boyer recommendations, the GESC identified the following major principles to guide it in the evaluation and development of General Education at the University of New Hampshire. A program in General Education should:

- Build a unifying framework, especially in the first year;
- Be understood by faculty and students as a central feature of its undergraduate education;
- Focus on the nature and conduct of inquiry and discovery so as to develop a competent and confident inquirer;
- Provide exposure to a breadth and depth of knowledge and perspectives;
- Promote active learning by linking appropriate skills with course work;
- Stimulate integrative experiences;
- Create some common experiences and a sense of community;
- Build upon multiple experiences, including but not limited to classes;
- Promote cultural self-consciousness;

[8] Boyer, *op. cit.*

- Provide linkages to the major and expand meaning to the major;
- Culminate in a capstone experience linked to the major;
- Exploit technology where feasible and appropriate;
- Reflect the values and character of UNH.

Implementation Principles

- Maintain stable and accountable leadership;
- Support faculty development and accesses the most talented faculty;
- Be well defined but flexible enough to accommodate differences among students;
- Be economically feasible and appropriately funded;
- Undergo regular evaluation of categories, criteria, courses, and administration;
- Engage in regular assessment of student outcomes.

UNH ACADEMIC PLANNING

During the past academic year, the Provost and Vice President for Academic Affairs has been leading an academic planning group to revisit the mission, vision and goals of academics at UNH. The GESC has been represented on this Planning Steering Committee. A full report of the Planning and Steering Committee is available on Academic Affairs web site. It is vital that this planning effort and changes in General Education be compatible. Therefore, the following excerpt quotes the Academic Planning Steering Committee's statement of Mission, Institutional Identity and Vision.[9]

Mission. The University of New Hampshire is New Hampshire's public research university, providing comprehensive, high-quality undergraduate programs and graduate programs of distinction. Its primary purpose is learning: students collaborating with faculty in teaching, research, creative expression, and service. The University of New Hampshire has a national and international agenda and holds land grant, sea-grant and space-grant charters. From its main Durham campus and its college in Manchester, the University serves New Hampshire and the region through continuing education, cooperative extension, cultural outreach, economic development activities, and applied research.

Institutional Identity. The University of New Hampshire is distinguished by its commitment to high quality undergraduate education, targeted graduate programs of distinction, our relatively small size, our location in a beautiful and culturally rich part of rural New England, our commitment to serving the public good, and our emergence as a significant research institution.

The dedication of our faculty to the highest standards infuses learning at UNH with the excitement of discovery and provides extensive opportunities for students to engage in meaningful research and public service.

[9] Academic Planning Steering Committee, *University of New Hampshire Strategic Plan—2001 to 2006*, July 2001 Draft.

Vision: The University of New Hampshire will be distinguished for combining the living and learning environment of a small New England liberal arts college with the breadth, spirit of discovery, and civic commitment of a land-grant research institution.

While the planning document is much broader than General Education, some of its specific goals and strategies are directly or indirectly related to undergraduate general education.

These include:

Goal 1: The University of New Hampshire will have the highest quality students, faculty, extension educators, and staff possible.

> Strategy 1A: Build on the distinctive aspects of undergraduate and graduate education at UNH to make UNH more competitive for the most capable and motivated students.

Goal 2: The University of New Hampshire will provide undergraduate students an innovative, high quality, coherent, integrated educational experience.

> Strategy 2A: Foster high expectations for academic excellence for all students.
>
> Strategy 2B: Make undergraduate research, experiential learning, community-based initiatives, internships, international study, and the Honors Program more integral to the academic experience.
>
> Strategy 2C: Provide appropriate advising and support services to assist student success.
>
> Strategy 2D: Review the curriculum and revise as necessary to avoid duplication to achieve alignment between our standards of academic quality and our resources.
>
> Strategy 2E: Establish general education as the common curricular ground for all students and integrate it more fully with the major area of study and with out-of-class experiences.
>
> Strategy 2F: Integrate academic and non-academic aspects of student life into a cohesive experience.
>
> Strategy 2G: Provide library and information resources and instruction to ensure academic success and provide skills for lifelong learning.

General Education can contribute toward achieving these goals and strategies.

UNH DISCOVERY PROGRAM

NAME & FRAMEWORK

The GESC recommends that the General Education program be renamed UNH Discovery Program. This is proposed to provide a new emphasis on the purpose of our efforts in General Education, to provide students with both the tools to learn and the exposure to knowledge that will make them competent and confident learners for a lifetime, no matter what their major. The term General Education does not communicate that sense of mission and tends to diminish the importance of exposure to the traditional liberal arts and sciences and to a sense of discovery of oneself and the world about us. At a research university such as UNH, faculty and students are concerned with both the discovery and transmission of knowledge. There are multiple ways to discover and the process of discovery is a life long adventure.

The proposed name of this program has linkages to NH and UNH. Edward Morgan Lewis was President of UNH from1927 to 1936. Lewis came to UNH from Massachusetts Agricultural College where he had been head of the department of languages and literature, head of humanities, Acting President, and President. One of Lewis' many accomplishments during his tenure as President of UNH was to stress the importance of the liberal arts. As a symbol of that effort, UNH bestowed on Robert Frost in 1930 his first of many honorary degrees. A quilt made from the fabric of Frost's numerous honorary degrees is located in Special Collections of Dimond Library. One of Robert Frost's most famous poems is "The Road not Taken". The last three lines of this frequently quoted poem read,

> "Two roads diverged in a wood, and I-
> I took the one less traveled by,
> And that has made all the difference."

The name Discovery also reflects the proposed statement of vision for UNH.

> "The University of New Hampshire will be distinguished for combining the living and learning environment of a small New England liberal arts college with the breadth, spirit of discovery, and civic commitment of a land-grant research institution."[10]

The UNH Discovery Program is designed to provide a common and unifying framework for the UNH undergraduate experience. In so doing, it incorporates the full extent of the undergraduate experience including such experiences as common courses, exposure to knowledge in both breadth and depth, and non-course experiences. There is a University Committee Appointed by the Provost that is examining non-course activities in the first year. In addition, the UNH Discovery Program is designed to give expanded meaning to the major by providing tools and perspectives and allowing students to discover new areas of knowledge and an expanded vision.

This UNH Discovery Program is reflective of the University of New Hampshire's responsibilities as a public land-, sea-, and space-grant institution of higher education and is complementary to its three-part mission of teaching, research, and service. We wish to offer undergraduates at the University of New

[10] Academic Planning Steering Committee, *University of New Hampshire Strategic Plan—2001 to 2006*, July 2001 Draft.

Hampshire an education that provides each individual with the opportunity to exploit her or his potential. We want to create students who are motivated and capable of continued discovery and lifelong learning. The UNH Discovery Program should provide students and faculty with the opportunity to explore their own individual identities as well as to help them fulfill their multiple roles in our society and the world.

The UNH Discovery Program builds upon the previous principles of General Education for UNH. For example, the 1982 Report noted that,

> Many new general education programs, in fact, are keyed to the premise that change is the dominant characteristic of our times and that the truly useful education is one which stresses intellectual adaptability and the development of those problem solving abilities, cognitive skills and learning techniques vital to lifelong learning.[11]

The purpose of the UNH Discovery Program is to develop the best of our students as they discover a changing world. The development of human potential becomes the central focus of the University experience; inquiry and discovery becomes the major vehicle for unfolding this potential. Within the university, students can learn how to learn, gain a sample of past learning, and prepare themselves for future learning. Discovery has a past, a present and a future. Faculty and students share this experience of discovery; it is both an individual and collaborative experience.

Knowledge Frameworks

The traditional divisions of general education areas of knowledge have been the natural sciences, the social sciences, the humanities, and the arts. Most universities require some distribution of courses within these areas as part of their graduation requirements, and the same has been true at the University of New Hampshire. While the distribution of courses within these areas has changed over the years, each has been included.

The UNH Discovery Program also begins with these four traditional areas. However, it expands upon them in multiple ways. As knowledge in all areas has exploded, scholars have become separated from others by the boundaries of disciplines. Scholarship has become increasingly specialized and compartmentalized. This can result in two problems, artificial and incomplete analysis on one hand and the increasingly narrow education of students on the other. While it is important for students to explore each of the four traditional areas of knowledge, it is also important for them to see the relationships between areas of knowledge. In designing this program, the Committee has placed a greater emphasis on interdisciplinary and cross-disciplinary study, while keeping the number of required courses within reasonable bounds.

All scholars (students and teachers) need to realize where disciplines have become artificially separated. Real world issues require a blending of areas and not a separation of them. Interdisciplinary activity becomes more critical as the problems of our social condition require collaboration across disciplines and where any "solution" must be interpreted from multiple perspectives. The artist can be strengthened by knowledge of biokinetics; the scientist can go beyond the boundaries of natural laws to address ethical questions; the poet can express the tensions of modern social interactions; the politician can make better social policy by understanding the underlying scientific principles. It is critical that we recognize that the same topic looks very different depending upon the lens that is used to view it. Differing cultural and

[11] *General Education, op. cit*, p.7.

disciplinary perspectives alter the questions asked, the methods used, and the answers derived. We are not seeking a common set of conclusions; we are seeking a common understanding of the various approaches to inquiry.

Our human potential cannot be explored if our experience is limiting rather than broadening. It is important for the development of each individual that she/he be exposed to multiple frameworks and perspectives while developing his/her own. The university, through its name as well as its function, is a single place where diverse people, perspectives, ideas, and skills are all brought together. While courses are central to the academic experience, much of university life occurs outside the classroom for both students and faculty. Those activities should complement the academic classroom experiences, just as the academic classroom should inform non-classroom experiences.

Nature of Inquiry

Areas of knowledge use multiple and different methods of inquiry. For some, the scientific method is the process by which natural laws are revealed and applied to human problems. For others, deduction, analysis, synthesis, interpretation, or creative expressions are strategies for advancing human knowledge and contributing to our local, national and world culture. The methods of historical analysis lead us in one direction; those of psychology and sociology lead us in other directions. The use of quantitative analysis might reveal unknown relationships between phenomena and lead to changes in social behavior. Systems thinking links the part to the whole. An examination of the significance of a single phenomenon such as the industrial revolution or global warming can take historical, scientific, political, economic, and artistic perspectives, with each perspective drawing on different methods of inquiry and communication. Understanding how other people learn leads to an expanded intellectual capacity and to an appreciation of the ways in which differing perspectives can complement one's own. It is important that we become competent and confident inquirers throughout life by being exposed to basic methods of inquiry, knowledge, paradigms, and skills.

Performance of Skills

Various modes of inquiry require the performance of multiple skills. These skills (among them being analytical skills, statistical analysis, writing, computer programming skills, drawing, reading music, using language to communicate ideas and emotions) make it possible for discovery to occur. Skills are instrumental to the methods of inquiry and the communication of the results of inquiry. Skills are acquired but are quickly lost if not used and reinforced. Thus scholars within an academic community need to not only master these skills but also continually use them in the continuing pursuit of discovery and communication. Repetition within different contexts reinforces these skills within multiple settings over time. Students who master them become competent and confident inquirers within their own areas of study and gain confidence to push into new areas of inquiry. While these skills may be introduced within UNH Discovery Program, they must be further developed within the student's major along with those skills that are peculiar to that major.

Value Sensitivities

The pursuit of inquiry and the application of specific skills should take place with an awareness of one's own values and sensitivity to the existence of multiple ethical principles, perspectives, and values. Value clarification, an understanding of the role of values and of the basis of one's own values, becomes critically important in the development of the intellectual life of an individual. The academic community

should be instrumental in teaching students to clarify their own values as well as to acknowledge and respect others' values.

There are two areas of focus for this examination, international and domestic. Understanding a foreign culture is important in a world in which borders are becoming more and more transparent. Global communication and commerce make it increasingly important that our citizens are cognizant of foreign languages and cultures. Our actions and those of others in global politics and economics are perceived differently depending upon differing cultures and beliefs. Social and scientific discoveries are interpreted differently through different lenses.

At the same time, understanding differences within the United States is also important, as this country was born in pluralism and has become increasingly pluralistic over the years. The same phenomenon may be interpreted very differently by those whose perspectives have been influenced by race, gender, ethnicity, religious affiliation, sexual orientation and/or other characteristics. These and other questions emphasize the importance of understanding other people's perspectives as we gain insight into our own.

Value sensitivity does not mean "political correctness"; rather it is an ability to recognize the existence of other perspectives and to place one's own experience and values within the context of others'. An additional component of value sensitivities is the ability of individuals not just to recognize and respect differences but also to discuss them and to bridge them when possible. As a community of learners, we should be able to discuss our differences in a civilized manner, to overcome misunderstandings, to find common ground where possible, and to respect true differences.

BASIC REQUIREMENTS OF DISCOVERY COURSES

All courses that qualify for the UNH Discovery Program will:

- Be approved to cover at least one (but no more than two) of the defined areas listed below; the First Year Inquiry Course may not be used to satisfy another area;
- Provide analytical frameworks and/or methodologies for analytical/synthetic thinking;
- Provide multiple opportunities for the effective communication of ideas;
- Generally have no pre-requisites for admission;
- Be offered on a regular and continuing basis for a minimum of three years;
- Carry at least three credit hours and generally meet for a minimum of three hours per week, with the exception of the University Dialogue; and
- Be sponsored by an academic unit of the University for administrative purposes and normally have a person responsible for the course who has the rank of Assistant Professor or higher. Teaching assistants are permitted under the close supervision of appropriate faculty.

ELEMENTS OF DISCOVERY

UNH Discovery Program has three different segments that take the student from admission to graduation.

[1] UNH First Year Experience

The GESC is convinced that the student's first year at a research university is critical from a number of perspectives, among which are the need for entering students to: [1] discover their roles and responsibilities as university citizens, [2] share common experiences, [3] understand and appreciate multiple frameworks for acquiring knowledge about themselves and their environment, [4] develop an appreciation of the need for multi- and interdisciplinary activity, and [5] be introduced to the intellectual vitality of a research university. The GESC believes a program should penetrate the student's total university experience and not be something "to get out of the way". The student's first year is critical in setting the tone for subsequent courses. The first year is also critical getting students to realize that learning is an active, not passive, process and that research is the university's vehicle for discovery, whether that be learning what others have discovered, expanding the boundaries of knowledge (basic research), and/or applying knowledge to human problems (applied research). This first year experience becomes central to the GESC's efforts to stimulate departmental majors to increase the involvement of students in active research as early as possible and to build a foundation for a capstone experience.

The major elements of the First Year Experience involve the following:

Assessment of Information Technology

Students today are increasingly computer literate. However, frequently literacy is at a low level and merely means an ability to access the World Wide Web. Some universities require all students to purchase computers before arriving on campus; others require knowledge of certain software. Due to the importance of technology to communication in the 21st century, it is critical that each student, no matter

what the area of focus, have the skills required to fully utilize the technology for learning in the classroom and in the future. Students will be given an information technology assessment to demonstrate a proficiency in using a word processing program, using a spreadsheet program, and accessing the World Wide Web and efficiently using library resources. Students not possessing these skills will be advised to take modules during the summer or during their first year to gain the skills necessary. Academic advising will play an important role in making sure that students access the appropriate modules. The Academic Computing Advisory Committee and UNH Library will be asked to provide guidance for the assessment tools and modules.

Assessment of Mathematics

Mathematical skills are increasingly a prerequisite for functioning in the world of information. Data and data manipulation lead to information. The lack of an ability to apply and understand quantitative relationships puts students at a disadvantage in terms of performance in courses and their career and/or their participation in a democratic pluralistic system. Each first year student will be evaluated in terms of his/her mathematical skills. SAT/AP scores can be used to satisfy this requirement. Students not meeting basic levels of mathematical competency would be required to pass a re-take of the assessment tool or take a course designed to bring them to that level. Such a course would not fulfill the Discovery course for Quantitative Reasoning. Once a student has demonstrated this level of competency, he/she would be eligible to take a course that met the Quantitative Reasoning requirement. The requirement for quantitative reasoning course should be consistent with the major's requirements and shall be broader than numeracy, *e.g.,* a course in logic could fulfill this requirement.

University Dialogue & Town Meetings

First Year students begin to learn about the social community on the campus and its ancillaries through orientation. Most students are excited, anxious, and wondering what college will be like. They are immediately plunged into choices of courses and begin to set off in different directions. This moment of orientation is, for most, the last time they will all be sharing a common experience until graduation. While they are oriented to the social aspects of the community that they have joined, the GESC believes that there should be a greater orientation to the intellectual aspects of that community. The University's Undergraduate Experience Committee appointed by the Provost is examining non-course activities in the first year that may complement the First Year of Discovery.

The GESC proposes that First Year students read a common book or a selection of essays as a way of introducing them to membership in a learning community. This could also be organized by having a common topic with different selections. Whichever organizational method is used, the selections shall be examples of good writing, show the significance of ideas, and generate community dialogue that crosses disciplinary boundaries. For example, the work could be a philosophical reflection by a physicist, an essay on the human condition by a biologist, a discussion of an important technology such as genetic engineering by an ethicist, a portrait of a scientist by a novelist, an examination of global or international issues by world leaders, the impact of infectious diseases in the 21st century, or other topics. It might be a classic piece of literature that has multiple ramifications for our community today. It might involve multiple perspectives on a single perspective on an important issue. While ideally it would connect to contemporary issues, it is not intended to be a study of a "current event". It would introduce all students to UNH as a community where intellectual work, reading, thinking, and discussion, matter to all. Although focused on First Year students, all students, faculty, and staff will be encouraged to participate in this year long dialogue.

The common reading and discussion would become an integral part of orientation; it would also become a touchstone for the campus for the academic year. At least one major speaker would be invited to UNH during the year to lecture on a theme related to the reading. Majors and specific courses, especially the first year English 401 and Inquiry Courses, could incorporate the required selection and perhaps related ones into their own teaching. Films could be shown related to the same theme. First Year students would meet in small, seminar-sized groups during orientation or the first part of the semester to discuss the readings with a faculty member. They would meet again during the year, in the same groups, to continue their discussions of the themes. These meetings together would count as a one-credit (pass/fail) course. We hope that all students, faculty, administrators, and staff would read the selection each year, so as to create throughout the campus community a simple, but important, common bond among all members of the university community. In the spring, the community would be encouraged to come together in a series of "town meetings" to discuss the implications of the dialogue for all of us. A faculty committee advisory to the Discovery Program Committee would be responsible for the selection of the topic and readings.

Writing

The existing English 401 is a national model that currently includes three types of writing, (1) writing from the student's own experience, (2) writing analytically about a piece of literature, and (3) writing a research paper using the library as a resource. Central to this course are the stages of writing, conferencing, and re-writing. We endorse these broad goals. We recommend that this course be general in nature and not linked to a particular major. However, we do encourage the linkage of particular sections of English 401 to other Inquiry and Discovery courses. We believe that English 401 should be more consistent across sections and that there should be a greater involvement of the Library in the research process. Incentives for tenure track faculty should be created to encourage their participation in English 401. UNH Discovery Program would require students to take both English 401 and the Discovery course as part of the first year requirements.

Inquiry Course

During the semester in which the First Year student is not taking English 401, he/she will take an Inquiry Course. The timing of this course can be modified for non-traditional and transfer students. An Inquiry course will be based upon the principles raised in the nature of inquiry section under the Knowledge Frameworks in this report. These courses will be exciting interdisciplinary courses examining a phenomenon from multiple perspectives. We expect that most Inquiry courses will focus on a particular issue or topic and use multiple intellectual frameworks for analysis. It is important for students to be able to link and compare a variety of approaches to a particular problem. One of the strengths of the University of New Hampshire is the significant amount of interdisciplinary research that is conducted here. As examples of possible courses, the following suggested titles are suggested to stimulate conversations among faculty: One course could be "The Industrial Revolution" taken from historical, scientific, political, economic, and/or artistic perspectives, with each perspective drawing on different methods of inquiry and communication. Another course could focus on "Global Warming" from scientific, economic, political perspectives. Another could focus on "Social Capital and Healthy Communities" from health, social, and psychological perspectives. Other courses might be "The Evolution of the Cosmos", "Faith and Reason", "Genetic Engineering 101", "Art, Politics, and War", "Terrorism and the State", "The Global Market", "Youth and Aging", or "The Structure of Space", "The Deeper Meaning of Eating". The Humanities Department currently offers courses that provide

appropriate models for Inquiry courses. We depend on the creativity, thinking, and research interests of the faculty.

The Teaching Excellence Program will provide the faculty with workshops and national speakers in support of the development of such courses. The Provost has designated $100, 000 from private gifts and discretionary funds for faculty development for the Discovery Program. A major portion of these funds will be used to support the creation of Inquiry Courses. Other external funds will be pursued as well.

Understanding how others learn leads to an expanded intellectual capacity and to an appreciation of the ways in which differing perspectives can complement one's own. It is important that we encourage our students to become competent and confident inquirers throughout life.

Not all departments are expected to develop Inquiry Courses. A course approved for the Inquiry requirement will be guided by the following principles:

- Inquiry courses will be taught on the inquiry model, exploring multiple perspectives and encouraging discussion;
- Inquiry courses will be writing-intensive whenever possible (and, at the very least, will include a writing component);
- Inquiry courses will be interdisciplinary and team taught where possible;
- Inquiry courses will use multiple paradigms for examining the same phenomenon;
- Inquiry course instructors will indicate to students the ways in which other disciplines of study would explore the topic, and they will look for ways to build an awareness of both the benefits and the limitations of any discipline-specific approach; and
- Inquiry courses will have a maximum of 25 students per faculty member.

Inquiry courses would encourage cross-disciplinary teaching and learning at UNH. Inquiry courses are intended to create a framework for the student's future interdisciplinary classes and integrated learning experiences, as well as provide an appreciation for different ways of learning. Like other courses in the program, Inquiry courses would be offered for a minimum of three years but could be renewed.

DISCOVERY

The Discovery Program includes ten content areas that must be satisfied upon graduation from the University of New Hampshire; they do not necessarily equate to courses. A given course may be approved to satisfy more than one area, but no more than two. A student must take a minimum of seven courses to meet these ten requirements. This arrangement provides students with flexibility in terms of the number of courses that they take within the UNH Discovery Program. This Program will encourage faculty to develop interdisciplinary courses where the linkages between areas of study are clearly articulated. It will be the responsibility of the UNH Discovery Program Committee to assure that there is sufficient content within a course to satisfy a particular area. The newly created University Academic Coordinating Committee will assure that new courses generated by a unit are in an appropriate domain for that unit. No course which covers more than one content area will be approved for more than five years without renewed examination of its ability to satisfy more than one area of study. To prevent students from taking too many Discovery courses from a single department, no student will be allowed to satisfy more than two of the categories with courses taught exclusively in any one department. In order to encourage more in-depth study of topical areas, the GESC encourages the use of linked courses to provide greater exposure to a particular area. Courses can be linked either concurrently or sequentially.

[1] Quantitative Reasoning

The 1982 General Education Report states that "as with critical thinking and the effective use of language, mathematical literacy is vital to advanced study and to lifelong learning." This statement is still true today and, in fact, the world of the 21st century may place increasing demands on the quantitative literacy of its citizens in the workplace and in education. Unfortunately, these citizens may not be prepared to meet these demands; many educated adults remain functionally innumerate, with quantitative skills well below what they need to live and work in today's world. For these reasons, courses that build and extend quantitative reasoning abilities and skills must continue to be an integral part of any undergraduate program regardless of a student's major or career path.

A recent panel of educators and policy experts formed to consider the meaning of numeracy in contemporary society developed a case statement, "The Case for Quantitative Literacy", which has been published by the National Council on Education and the Disciplines. The statement outlines the following components of quantitative literacy:

- Confidence with Mathematics. Being comfortable with quantitative ideas and at ease applying quantitative methods. Individuals who are quantitatively confident routinely use mental estimates to quantify, interpret, and check other information. Confidence is the opposite of "math anxiety"; it makes numeracy as natural as ordinary language.

- Cultural Appreciation. Understanding the nature and history of mathematics, its role in scientific inquiry and technological progress, and its importance for comprehending issues in the public domain.

- Interpreting Data. Reasoning with data, reading graphs, drawing inferences, and recognizing sources of error. This perspective differs from traditional mathematics in that data (rather than formulas or relationships) are at the center.

- Logical Thinking. Analyzing evidence, reasoning carefully, understanding arguments, questioning assumptions, detecting fallacies, and evaluating risks. Individuals with such habits of inquiry accept little at face value; they constantly look beneath the surface, demanding appropriate information to get at the essence of issues.

- Making Decisions. Using mathematics to make decisions and solve problems in everyday life. For individuals who have acquired this habit, mathematics is something not done only in mathematics class but a powerful tool for living, as useful and ingrained as reading and speaking.

- Mathematics in Context. Using mathematical tools in specific settings where the context provides meaning. Notation, problem-solving strategies, and performance standards all depend on the specific content.

- Number Sense. Having accurate intuition about the meaning of numbers, confidence in estimation, and common sense in employing numbers as a measure of things.

- Practical Skills. Knowing how to solve quantitative problems that a person is likely to encounter at home or at work. Individuals who possess these skills are adept at elementary mathematics in a wide variety of common situations.

- Prerequisite Knowledge. Having the ability to use a wide range of algebraic, geometric, and statistical tools that are required in many fields of post secondary education.

- Symbol Sense. Being comfortable using algebraic symbols and at ease in reading and interpreting them, and exhibiting good sense about the syntax and grammar of mathematical symbols.[12]

Recent national discussions about quantitative literacy have sparked a debate on the relationship between quantitative literacy and mathematics. It is clear from the above list of components that mathematics plays a central role in the development of quantitative literacy, but there is a growing consensus that the terms are not interchangeable. Deborah Hughes-Hallet in an essay states "mathematics focuses on climbing the ladder of abstraction, while quantitative literacy clings to context. Mathematics asks students to rise above context, while quantitative literacy asks students to stay in context. Mathematics is about general principles that can be applied in a range of contexts; quantitative literacy is about seeing every context through a quantitative lens."[13] This distinction presents a challenge to programs that endeavor to meet the needs of a range of disciplines. The goal that all students, regardless of major, have the opportunity to participate in a context-rich quantitative literacy experience must be balanced with the reality that there are certain mathematical concepts and skills that may not be covered by such an experience.

The GESC proposes that all students entering UNH take a Mathematical Assessment. Students may be exempted from this assessment if they achieve a minimum SAT/AP score. The UNH assessment will be designed to test the mathematical skills. It will be developed by the Department of Mathematics and submitted to the Discovery Committee for its approval. Students will be advised to take a quantitative course based on their level of proficiency on this assessment.[14] If students do not meet this minimum level of competency, they will be required to re-take the assessment or take a course bringing them to that level prior to fulfilling the Quantitative Reasoning requirement.

During the campus discussion of the Committee's initial draft proposal, there was great debate regarding the use of the study of logic to fulfill this requirement. Based upon the arguments submitted to us, the Committee is persuaded that such a course could meet the requirements of Quantitative Reasoning.

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[12] Lyn Arthur Steen (Executive Editor), *Mathematics and Democracy: The Case for Quantitative Literacy* (National Council on Education and the Disciplines, 2001) pp. 8-9.

[13] Deborah Hughes-Hallet, " Achieving Numeracy: The Challenge of Implementation," in Lynn Arthur Steen (Executive Editor) *Mathematics and Democracy: The Case for Quantitative Literacy*, (National Council on Education and the Disciplines, 2001) pp. 93-98.

[14] If the level of proficiency is not sufficient for an undergraduate-level course, students will be required to complete a prerequisite course.

Natural Sciences

"The achievement of scientific literacy must be a key goal of general education." [15] The purpose of the Natural Science component of the Discovery Program is to introduce students to scientific content and methodology; i.e., to produce scientifically literate students.

To qualify as a natural sciences course in the UNH Discovery Program a course will:

- Use scientific methodology and a scientific way of thinking to attempt to answer questions and explain phenomena of the natural world;
- Critically assess and evaluate scientific conclusions in both technical literature and popular media;
- Apply scientific knowledge and understanding to current problems and issues that have a scientific basis; and

An understanding of the process of science is as important as an understanding of its content. We agree with the Report of the Undergraduate Curriculum Review Committee in 1982 that resulted in our current General Education Program: "The emphasis ought to be on the process of science as inquiry: 1) how disciplines uncover and validate knowledge; 2) how phenomena are understood through observation, experimentation and quantitative analysis; 3) how data are collected, organized and interpreted; 4) how hypotheses are created, modified and confirmed or disproved; and 5) how scientific theories and models are constructed."[16]

Biological sciences must contend with the challenges of acquiring, maintaining, managing, and/or gaining access to living organisms. Such "face-to-face" contact is indispensable if the student is to perceive the organism as more than a conceptual object, and provides opportunity for encountering in tangible form the many ethical issues that pertain to
biological research. The physical sciences have unique challenges that
are not shared with the biological sciences. Although the natural sciences are united in their adherence to the principles of sound scientific practice, the physical and biological sciences differ considerably in terms of subject matter, outlook, and culture. Students will be required to take one biological and one physical science, with at least one having a laboratory experience.

[2] Biological Sciences

The subject matter of the biological sciences is life. In addition to acquiring an understanding of the methods of scientific inquiry, graduates of the University of New Hampshire will have some breadth and depth of knowledge in at least one of the key content areas of the biological sciences. These content areas include the basic structure and function of organisms, the interactions of organisms with their environment, human health, biotechnology, and the mechanisms of Darwinian evolution. To be included in the Discovery Program, a course in biological science will be introductory in nature and present the fundamental paradigms of that discipline. It may be a course required for science majors or it may be designed for non-specialists. A graduate of UNH will have the capacity to critically evaluate ongoing developments in the basic and applied biological sciences. For example, the current controversy dealing with stem cell research might be included in such a course to prepare students to contribute to this debate.

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[15] *General Education: A Report of the Undergraduate Review Committee*, 1982.
[16] *General Education: A Report of the Undergraduate Review Committee*, 1982.

[3] Physical Sciences

The physical sciences include areas of study that deal with the nonliving component of the natural world. These include physics, chemistry, astronomy, cosmology, geology, and earth science. To be included in the Discovery Program, a course in physical science will be introductory in nature and present the fundamental paradigms of that discipline. It may be one required for science majors or it may be designed for non-specialists. As in the biological sciences it will include an examination of the breadth and depth of knowledge that describes physical events in the natural world. For example, our world is awash in chemicals. Most are beneficial. Many can be harmful when used inappropriately. An understanding of basic chemical principles can help us to make the critical decisions we are faced with, such as the level of arsenic that is acceptable in the public drinking water supply.

[4] Historical Perspectives

The 1982 report on General Education recommended the inclusion of a Historical Perspectives category on the grounds that "an educated person must have some measure of perspective on the processes of historical change, acquaintance with major historical developments, and understanding of the historical conditions and forces that have shaped the present." [17] As the report pointed out, many students arrive at UNH with only the barest knowledge of major historical developments and little understanding of how those developments have shaped contemporary life in all its complexity. As many recent reports have demonstrated, this remains true of most graduates of American high schools (and of not a few graduates of American colleges and universities). The responses of UNH faculty in many departments to an earlier draft of this proposal have indicated a strong preference to retain a separate and distinct requirement for Historical Perspectives in the new Discovery program.

One of the assumptions behind the notion of a "historical perspective" is that the perspective to be gained arises in part from the study of particulars. Any course meeting the requirements in this area, therefore, should be firmly content-based. Given the widely varying levels of preparation and background of our students, it would be unwise to require any single, specific course for this area, but, for most students, a course surveying broad developments relevant to an understanding of important aspects of the contemporary world will best serve to satisfy the requirement. Students with a stronger background or particular interests in certain subjects might well be allowed to study more specialized topics in greater depth.

All courses in Historical Perspectives, however, should be designed to fulfill the major goals as set out in the 1982 Report on General Education: "to assist students (1) to identify relevant antecedent developments that shape the present; (2) to understand events in their context and complexity; and (3) to learn sufficiently the methods of historical inquiry and modes of historical thought."[18]

[17] *General Education: A Report of the Undergraduate Review Committee*, 1982.
[18] *General Education: A Report of the Undergraduate Review Committee*, 1982.

[5] Foreign Culture

Americans tend to lag behind other parts of the world in terms of their knowledge of geography, foreign language and cultures. With the increased importance of globalization of information, culture, and commerce, it is important for students being prepared in the 21st Century to have an understanding of cultures other than those of the United States. It is important for students to acquire a meaningful cultural and linguistic proficiency through study and immersion in languages and cultures other than their own. The University of New Hampshire currently has a Dual Major in International Affairs, an interdisciplinary major in European Cultural Studies, and a minor in Canadian Studies, among other foreign studies. The languages have been reorganized into a Department of Languages, Literatures, and Cultures which offers an interdisciplinary curriculum in addition to language study. These are important initiatives that encourage our students to have an increased awareness and appreciation of foreign people, languages, and cultures.

Courses in foreign culture by definition open students to different ways of looking at the world. While English remains the dominant language in global commerce, communication, and governance, well-educated citizens of the United States should have a facility with a second language. Individual schools and colleges may, therefore, wish to require language skill competency as a necessary part of the Foreign Culture requirement.

To qualify for the Foreign Culture requirement a course will be guided by the following principles:

- Preparation of language skills at the intermediate level;

OR

- Introduce students to different cultural ways of looking at the world through focused study of a single society, or a few related societies in a single region, outside of the United States.

[6] Fine & Performing Arts

The traditional divisions of knowledge have included the arts as well as the natural sciences, social sciences, and the humanities. UNH has historically required students to take a fine arts course. The UNH motto proclaims its founder's priorities as "science, arts, and industry." As Plato stated in Book III of the Republic, the person properly educated in the arts would not just delight in beauty, but would nourish beauty.

Why study the arts?

> "Works of art are powerful. They speak to, from, and through the emotions and the intellect. They reflect and stimulate passionate engagement. They provide cultural identity and engender civilization. But behind these powers lies the captivating force of aesthetic effect produced by

organization, logic, and intellectual process. These attributes and conditions make the creation, interpretation, performance, and study of art central to higher education.[19]

The 1982 Report of the Undergraduate Curriculum Review Committee was pessimistic about the state of arts education in our society; their words still ring true,

"(Arts) is the aspect of undergraduate education most frequently entirely neglected by students today. Few visit an art museum, or have ever attended a live dramatic performance. Few listen to classical music, or are acquainted with a rudimentary knowledge of architecture, ballet, or sculpture. We all suffer the consequences. Without a public that understands and cares about the arts, support ceases, the arts decline, and the quality of life for all diminishes. Moreover, the University has an obligation to preserve our cultural heritage and transmit it to future generations."

It is important for every student at UNH to appreciate some aspect of the arts. This shall not be a passive experience, but include some element of engagement in the process of art. Whether it is listening to a traditional opera, throwing a pot, participating in a theatrical performance, or learning to dance, students need to participate actively within the process. The integration of the Fine and Performing Arts with the artistic life of the University is an important part of the non-course experience of being part of a university community. We encourage student experiences that provide direct student involvement with the Fine and Performing Arts.

A course fulfilling the Fine and Performing Arts requirement will be guided by the following principles:

- The subject will be art, theater, film, dance, or music;
- The course will endeavor to enrich a student's understanding of and appreciation for the fine and performing arts;
- The course will have some element of experiential learning.

[7] Social Sciences

The social sciences offer students a myriad of theoretical perspectives to view and understand their world. The social sciences provide a framework for thinking critically about the institutions and concerns of contemporary society in order to understand the challenges of today and tomorrow. Research from the social sciences has played an important role in illuminating issues shaping the twentieth century such as the AIDS epidemic, the changing role of women, and national and international environmental policies. The importance of having a social science course in the Discovery curriculum is described in the1982 Report of the Undergraduate Curriculum Review Committee. The report's authors point out that the social sciences encompass major traditions of thought, theory and empirical data applied to understanding human behaviors and values. Using these theoretical perspectives, a person with social science training is familiar with the regularities and differences in human thought and actions. The training to analyze the world in which one lives through a lens other than one's own provides insight and empathy into others' actions, thus counteracting discrimination or hatred. Policy makers, corporate executives and world leaders consult social scientists on a regular basis. Social science research focuses on themes of public importance from human sexuality to the challenges of globalization, from the impacts of information

[19] National Office for Arts Accreditation in Higher Education, "The Work of Arts Faculties in Higher Education, p. 2.

technology to current transformations in international higher education.[20] It is impossible to listen to a news program without explicitly or implicitly hearing about research by social scientists in a myriad of locations and fields. Students in social sciences courses encounter a variety of perspectives on social interactions and social institutions.

The 1982 Report of the Undergraduate Curriculum Review Committee specified that the courses "must develop critical thinking about moral and social issues, and introduce the student to the systematic use of data, documentation, experimentation, computation and observation relevant to particular disciplines."[21] The social science pathway requirement builds on the 1982 report. It will require students to use a theoretical perspective from the social science course of their choice to analyze an issue affecting their world, whether on the scale of the local community or of the international community. Students will learn to develop hypotheses surrounding the social issue of their choice and discuss methods to test and measure their hypotheses and examine the actual or hypothesized results. Through this exercise, students will have an opportunity to experience how social scientists study people and institutions.

Finally, as a land grant university, UNH should promote understanding of social change in New Hampshire. A social science course can provide insight into the implications of economic change in the state, the organizational structure of the legislative body, and the use of social capital. It is an essential part of our mission as a land grant university to provide students with an understanding of their state and world, a world in which they will ultimately become leaders.

To meet the social science requirement courses shall be guided by the following principles:

- Provide the theoretical framework of one of the social sciences;
- Utilize methods of inquiry typical of that social science;
- Apply the framework and methods to one or more social issues.

[8] Humanities

The study of important works of ideas and of the imagination, taught most often in departments of literature, philosophy, and history, and often grouped together as the "Humanities," have always been a key component of liberal arts curricula and of most general education programs. The current UNH General Education program is no exception; we currently require one course in "Works of Literature, Philosophy, and Ideas." Courses in philosophy generally introduce students to questions related to the foundations of knowledge and some of the answers that have been proposed to basic questions of meaning, ethics, aesthetics, and identity. In courses focusing on literature, they engage with poetry, novels, and other works of the imagination that, in their own way, address similar questions and propose their own answers. Courses in humanities frequently use key primary texts and focus on the evolution of questions and answers over time. Students in such courses are introduced to major works that have fundamentally shaped our understanding of the world and our sense of self.

[20] Social Science Research Council, 2001.
[21] *General Education: A Report of the Undergraduate Review Committee*, 1982.

We propose that students be required to fulfill a Humanities requirement as part of the Discovery Program. Such a course might be offered by any of a number of departments, but all of them will:

- Introduce students to basic content-central works of literature and/or ideas, or historically important primary texts;
- Introduce students to key methods of inquiry appropriate to the discipline in which the course is taught;
- Provide students with an understanding of the nature of the discipline, and what sets it apart from others.

[9] Social Identity and the Individual

A document entitled "On the Importance of diversity in Higher Education," has been endorsed by many professional organizations involved in higher education, including the American Association for Higher Education, the Association of American Colleges and Universities, and the American Association of University Professors. This document states a widely shared conviction that a diverse society is best served by a diverse community on university campuses, for such diversity "enriches the educational experience," "promotes personal growth--and a healthy society," "strengthens communities and the workplace," and "enhances America's economic competitiveness." The GESC believes that it is important for UNH students to academically address the issues of social identity.

Most universities look for ways to realize the benefits of a diverse community in part by reflecting diversity in the curriculum. While many universities now routinely include a "diversity requirement" in their core curriculum, the definition of "diversity" has been a stumbling block to many institutions, including UNH. "Diversity" can come to mean the possession of a cultural trait--something that one group of people has and that others lack, or something that everyone has--or it can be a very generalized way of talking about the challenges of living in a pluralistic society. Vague and broad definitions, in short, can easily become meaningless.

At their best, diversity requirements prepare students for an ongoing examination of the varying historical and cultural conditions that have shaped individual and group identity. More limited diversity requirements can simply encourage a kind of cultural tourism, a set of experiences that give students a taste of different cultures. While this latter approach is not inherently bad, it can encourage cynicism about the nature and purposes of academic approaches to the study of identities and social systems.

In emphasizing a selective approach to diversity, and in promoting "social awareness," the GESC proposes that an area of knowledge should be the interaction of individual rights and social identities with a main focus on the US experience. One of the distinguishing features of the United States is the emphasis on individual rights and its tensions with the larger society. We emphasize especially the need to involve all students in the study of social identity as defined by race, color, ethnicity, religion, gender, sexual orientation, and/or disability. We focus on these categories of cultural identity because these have historically been used to define social, legal and political rights throughout US history and to determine, and at times limit, who will have access to the rights and benefits of citizenship. These categories of social identity, in short, have been at the heart of our national experience; defined by law, central to the regulation of economic independence and opportunity, restricted politically, and, on occasion, the concern of some of our most heated struggles as a national community.

As a result of the discussions of the Committee's initial draft, the committee has renamed the category and expanded the areas covered. While the Committee continues to feel that this area should primarily focus

on the US experience, it is also persuaded that the experiences of other countries should be encouraged for comparison.

To qualify as a course fulfilling Social Identity and Individual Rights courses shall be guided by the following principles:

- The course will be taught, as much as possible, around student discussion, exploration and debate;
- The course will be centered on race, color, ethnicity, religion, gender, sexual orientation and/or disability;
- The course will introduce students to current scholarly approaches to the relevant issues, as well as appropriate theoretical frameworks;
- The course will provide students with the historical background they need to understand current debates and events related to social identity;
- The course will focus on the US experience, but comparative approaches are encouraged.

[10] Technology, Environment and Society

We recommend that students be required to take one course focusing on the impact of technological change on society, the interaction of human behaviors and the natural world, or both.

Perhaps the dominant feature that distinguishes the modern age from ancient and medieval societies is the accelerating advancement of technology and its increased role in everyday life. However, we are often ignorant of the most basic features of these technologies and how they impact society and individuals. UNH graduates should be knowledgeable about the development of technology and its potential effects; they should be able to think intelligently about the intersection of technology with social, ethical and ecological consequences. For example, what are the social impacts of the introduction of a particular agricultural technology to a culture in Africa? How will technology impact our sense of privacy? Any course in technology under this category will include a philosophical, ethical, or historical perspective on the technology and not be merely a skill based course. Any skill based technology course fulfilling this requirement must have a substantial section on the impact of such technology.

Environmental issues are topics of social concern and debate. Many come to or stay in New Hampshire because of its environmental characteristics. Environmental questions raise many domestic and international issues that are important for students to be able to address. The concept of global warming generates scientific and social issues that will be of concern for generations to come. How could policies designed to limit global warming affect economic growth in developing countries? Domestically, environmental policy is dealing with more complex nonpoint pollution sources, devolution of regulatory responsibilities, contentious legal disputes, performance outcome measures, and other issues. Internationally, there are issues of economic development versus cross border environmental impacts, deforestation, pesticides and food production. These are major issues that will continue to be important in the coming decades. In the Discovery Program the Technology, Environment and Society requirement can be satisfied by courses giving students the ability to comprehend and critically evaluate the basic

principles that govern the ecosphere, linkages among living organisms and the physical environment, consequences of actions and technology on natural systems and human behavior. While we think it is very useful for students to appreciate the University's environment and to take advantage of the opportunities presented here, this area may be satisfied by local, state, national, or global examples. The essential element is that students are exposed to the interactions of social and environmental forces.

To qualify as meeting the Technology, Environment and Society requirement is that courses shall:

- Examine the impacts of technology or technology transfer on society; and/or
- Examine the consequences of human activity on natural systems.

[3] MAJOR AND CAPSTONE EXPERIENCE

Writing Across the Curriculum

In addition to English 401, all undergraduate students would be required to complete three writing-intensive [WI] courses. Writing across the curriculum is an important part of a university education. Writing is the reflection of inquiry. Since the mid-seventies, universities have been developing writing across the curriculum (WAC) programs to focus not merely on a writing course but also to develop writing within each discipline. Improving student writing becomes the obligation of all majors and departments. This responsibility is important because writing varies by discipline and profession and because writing should build upon the student's passions and interests.

Despite its rather short existence at UNH, the UNH WAC program has recently been recognized as a leader among universities. The existing writing across the curriculum requirements would remain unchanged except that they would be within the UNH Discovery Program and not a separate University requirement. The Writing Center is a valuable resource for faculty and students. We would also encourage the Library to work closer with Departments in the development of writing within the major. There would be four WI courses, including English 401, at least one course at the 600 level or higher, and at least one course within the student's major.

To meet the Writing-intensive requirement, the course will:

- Use writing as an intellectual process to learn material, to discover, construct, and order meaning;
- Have students write at regular intervals in the course and be a significant part (50% or more) of the final grade;
- Provide students the opportunity to learn to write effectively in an academic discipline or for professional and lay audiences;
- Provide the student with the opportunity to complete prewriting, drafting, revision, and editing as a method of learning; and
- Provide students with constructive feedback (e.g., peer response, workshop, drafting/revising) to improve their writing.

The Capstone Experience

The GESC believes that every student should have some type of a capstone experience before leaving the University. The capstone experience should build upon the foundations provided by Discovery Courses and the major so that the boundaries between Discovery courses and the major are diminished. For some departments/majors this might be the development of a research project. The GESC encourages this type of effort so as to emphasize unique opportunities at the University of New Hampshire. However, for other departments/majors a capstone course that brings together previous learning and extends that learning through formal or informal presentations might be more appropriate. For others a culminating examination, performance, or internship might be appropriate. The GESC committee believes that the capstone requirement is best done within the student's major.

Externally funded research currently totals more than $80 million and UNH is classified as a Carnegie "Doctoral/Research Extensive University". The University is one of the few land grant, sea grant, and space grant institutions in the country. The University's sponsored research has grown dramatically and the development of the entrepreneurial campus provides additional opportunities for faculty and students. UNH has a strong tradition of assuring that the three traditional areas of teaching, research, and service complement rather than compete with each other. It has a large undergraduate student body with selected Ph.D. and professional graduate programs. The university has a rich history of involving undergraduates in research projects as well as supporting student-initiated research. Programs such as the Undergraduate Research Opportunities Program (UROP), the International Research Opportunities Program (IROP), the Honors Program, and other efforts have engaged undergraduates in meaningful research activities. Student/faculty partnerships in research are to be encouraged. The growth of the Undergraduate Research Day is testimony to the increased recognition of undergraduate research opportunities throughout UNH.

The GESC believes that while each student should have a capstone experience, the major is the appropriate unit to determine the nature of that experience. Some departments/majors might allow options for students, e.g., the substitution of a research project for a capstone course. Broad general guidelines will be developed to assure that this is a meaningful experience. The department will be responsible for developing and certifying completion of the experience. The Discovery Committee will assure that each Department has a capstone experience meeting the intent of the Discovery Program

ADMINISTRATION OF THE UNH DISCOVERY PROGRAM

In order for the Discovery Program to retain a sense of mission and organization, it must have visibility and continuity of leadership. One of the criticisms of the implementation of the 1982 General Education revision is that there has been little administrative leadership and, especially, a lack of support for faculty development and evaluation. The GESC believes that there must be a person who is responsible for representing and serving as an advocate for this important element of undergraduate education within University discussions. The GESC recommends that within the Office of the Provost & Vice President for Academic Affairs a faculty member be appointed for three years as the Director of the UNH Discovery Program. The Director will be responsible for representing, implementing, and administering the UNH Discovery Program. This will be a full time position for at least the first two years of implementation. Implementation will have to address a fair method for allocating student credit hours and tuition revenue for team taught courses when faculty members cross RCM units.

In addition, there will be UNH Discovery Program Committee representing faculty from the various schools and colleges as well as appropriate administrative representatives to assure smooth implementation. The Committee would be composed of two representatives form the College of Liberal Arts and one from each of the other Schools and Colleges. Each School and College will determine its own selection process. Committee membership would be for a period of three years. There would be a sequencing of terms to minimize turnover in a given year. Faculty could serve more than one term. In addition to college/school representation, the Vice-Provost for Undergraduate Studies, Director of the UNH Discovery Program, and the Director of the Writing Across the Curriculum Program will be standing members of the committee. The initial charge for this committee will be to evaluate all courses proposed by academic departments for acceptance into the UNH Discovery Program. In addition, this committee will provide continuing oversight and evaluation of all Discovery courses. Courses would be regularly re-evaluated for continued inclusion in the Discovery Program. The existing University Writing Committee would be maintained but integrated into the Discovery program; all Writing Intensive courses will be re-evaluated. The office of the Provost & Vice President for Academic Affairs will provide staff support to the UNH Discovery Program.

The Discovery Program will be a central focus of the implementation of the University's Academic plan and will be used in part to govern the decisions regarding academic programming. If approved, the Provost has agreed that support for the Discovery Program would be the highest priority for University discretionary funds. For example, $100,000 from private gifts and discretionary funds has already been designated to support faculty development for the First Year Experience next year and in each of the next two years. There will be core support for the Director of the Discovery Program. In addition, existing resources for classroom technology, lecture series, and the Teaching Excellence Program will be focused on supporting the Discovery Program. Appropriate support will be provided to faculty for participation in the University Dialogue and student assessments. We recognize that the recommendations in this report will probably result in a reallocation of existing resources in order to focus more resources on the first and senior years.

Depending on the time of approval by the Faculty Senate, money could be available as soon as the summer of 2002 to begin the process new course development in support of the first year effort. The Teaching Excellence Program will provide support for Inquiry based course development. There will be a careful phasing in of new requirements to meet the obligations of existing students as well as to prepare for an orderly transition to the new requirements. While external grant money and potential donors can be requested to fund the initiation of some of these efforts, it is critical that core University money

support this program's development, implementation and maintenance. In addition, faculty rewards of various types should be developed to reflect the importance of Discovery courses as well as teaching in Discovery courses. The Provost has agreed to fund two University awards for teaching innovation and excellence in Discovery courses.

The UNH Discovery Program will be phased in over a period of time to minimize disruption and to provide sufficient lead-time for development. Advising will play an important role in this effort and will need sufficient resources. Those aspects requiring minimal financing or organizational change can be implemented before those that require more extensive investment/development.

EVALUATION OF UNH DISCOVERY PROGRAM

The UNH Pathways for Discovery will be re-evaluated after a five-year period of implementation. The program will require development in particular areas as well as the phase in of other elements. The UNH Discovery Program will make annual reports to the Faculty Senate.

Evaluation is a central component of any program. In addition to periodic re-evaluations of approved courses, the Discovery Program will engage in a continuing evaluation of the program from student, alumni, faculty, and administrative perspectives. Student outcomes will be analyzed by specific courses and by components of the Discovery Program. A more thorough review of the program would occur every five years to make sure that it is meeting its goals and operating smoothly.