

May 23, 2008

TO: Twin Cities Faculty, Academic Advising Staff, and Academic Administrators

FROM: Robert McMaster, Professor of Geography and Vice Provost and Dean, Undergraduate
Education

Leslie Schiff, Professor of Microbiology and Chair, Council on Liberal Education

SUBJECT: Guidelines for Course Submission for Liberal Education Designation

This communication will outline the guidelines that colleges must follow in submitting their courses for Liberal Education designation. Since the new guidelines developed by the Council on Liberal Education are clearer and more rigorous, those proposing courses, as well as those reviewing courses, now have an unambiguous basis from which to work. Guidelines are outlined in the following document.

As a reminder, any course submitted now must meet the new guidelines; courses that were submitted with permission under the soft moratorium (before May 1) using the old guidelines must be resubmitted and reviewed again under the new guidelines before January, 2010. The new requirements for liberal education will go into place for students entering the University in fall, 2010. Further implementation and recertification timelines were outlined in a previous memo, dated April 30, 2008.

If you have questions about the guidelines or about the implementation process, please contact Laurel Carroll at l-carr@umn.edu or Linda Ellinger at ellin001@umn.edu.

Guidelines for Proposing a Liberal Education Course

The new requirements for liberal education, approved by the Faculty Senate on April 3, will go into effect for students entering the university in fall, 2010.¹

<u>CORE</u>	<u>THEMES</u>
<p>One course of at least three credits in each of the following:</p> <ul style="list-style-type: none">• Arts/Humanities• Historical Perspectives• Literature• Mathematical Thinking• Social Science <p>One course of at least four credits, with a laboratory or field experience, in each of the following:</p> <ul style="list-style-type: none">• Physical Science• Biological Science	<p>A minimum of one course of at least three credits in each of the following thematic areas:</p> <ul style="list-style-type: none">• Civic Life and Ethics• Diversity and Social Justice in the United States• The Environment• Global Perspectives• Technology & Society <p><i>Courses may be certified for both a Core and a Theme if the theme is fully infused into the Core course.</i></p>

PROCEDURES

- Courses in the liberal education curriculum should be of high quality, and offered frequently and predictably so undergraduate students are able to plan their degree programs and make timely academic progress.
- The text of the proposal for the liberal education (LE) requirement must be entered in the Electronic Course Authorization system (ECAS) under the Liberal Education section. This documentation includes a new expectation that courses in the liberal education curriculum must meet one or more of the [Student Learning Outcomes](#) (SLO). Under the Liberal Education section on ECAS, check which of the SLOs that the course meets, and provide a brief paragraph (300 characters) explaining why. (See page 14 below for the complete list.)
- A copy of the current course syllabus is required for all proposals. The syllabus must be for a term within the past two years, in English or with an English translation provided. For courses under development, the syllabus may be provisional but still must document how the course will meet the LE requirement(s), both in the course objective and as a part of the

¹ This document replaces the previous Call for Course Proposals dated January 20, 2005. The full text of “Renewing Our Commitment to Liberal Education,” the report of the Council on Liberal Education, can be found at <https://www.myu.umn.edu/public/cle.html>. A summary document comparing the old and new requirements is available at the same URL. The University of Minnesota-Twin Cities liberal education requirements apply to undergraduate students entering a baccalaureate degree program.

course activities. A list of lecture topics or discussion topics should be included, with the understanding that dates, schedules, and readings may be tentative.

- The syllabus is a critical part of the proposal and *may be the determining factor* in whether a course is approved. The syllabus needs to conform to the University Senate Syllabi Policy, approved December 6, 2001. (The complete policy can be found at <http://www1.umn.edu/usenate/policies/syllabipol.html>.) The syllabus must document explicitly how the course meets the core or theme criteria through the stated course objectives, course topics, writing assignments, and required readings so students are aware of how and why the course meets the LE requirements. Supporting materials, such as lab manuals, sample assignments, or handouts, may be included.

CORE COURSES

All courses in the Core must meet the following requirements:

- They explicitly help students understand what liberal education is, how the content and the substance of this course enhance a liberal education, and what this means for them as students and as citizens.
- They employ teaching and learning strategies that engage students with **doing** the work of the field, not just reading about it.
- They include small group experiences (such as discussion sections or labs) and use writing as appropriate to the discipline to help students learn and reflect on their learning.
- They do not (except in rare and clearly justified cases) have prerequisites beyond the University's entrance requirements.
- They are offered on a regular schedule.
- They are taught by regular faculty or under exceptional circumstances by instructors on continuing appointments. Departments proposing instructors other than regular faculty must provide documentation of how such instructors will be trained and supervised to ensure consistency and continuity in courses.

Arts and Humanities

Courses that meet the Arts and Humanities Core requirement fall into two broad groupings of disciplines: first, the arts; and second, humanistic studies. Students must choose work in one of these areas to fulfill this requirement.

CLE Guidelines for Arts Courses

Study in the arts broadens the understanding of how we think. Arts courses that meet the Arts and Humanities Core requirement provide the opportunity to explore and engage with the concepts and processes of historical and contemporary practice in the arts. Such courses may be courses of artistic practice in, for example, creative writing, visual arts, music, theatre, dance, film, design, and collaborative arts. These courses will promote the open exploration of creative media in new ways as well as supporting traditional practice. These courses will explore the ways in which art derives its value from various histories and perspectives, means and methods. Among the specific traits

fostered in such courses are thoughtful analysis, flexibility, experimentation, and ingenuity in problem solving and making use of complex concepts. These courses are designed to initiate a lasting connection to the arts for students as creators, viewers, or participants.

To satisfy the Arts and Humanities Core requirement in Arts a course must meet these criteria:

- Students create their own artistic efforts.
- Students reflect on their artistic efforts in writing or in discussion that develops awareness of the considerations that guide artistic practice and response.
- Students become aware of why and how artists select their content, media, and method.
- Students develop an understanding of the arts in relation to communities in and for which art is created.
- Students examine how the historical dimensions of time, place, and culture inform artistic practice.

CLE Guidelines for Humanistic Studies Courses

The second group, Humanistic Studies, includes such disciplines as art history, classics, cultural studies, design history, film and media studies, philosophy, and religious studies. Works in Humanistic Studies reflect on the common and familiar human condition – our human limitations and unique failures together with our distinctive human capacities and achievements. Courses in this group examine works that invite or compel critical thought. Reflection on such works will enrich students' lives and make them more thoughtful and perceptive members of our communities.

To satisfy the Arts and Humanities Core requirement in Humanistic Studies a course must meet these criteria:

- Students engage in detailed analysis of and reflection on some humanistic literature or creative product – for example, a philosophical essay, a religious treatise, a work of cultural commentary, or a documentary film.
- Students develop their understanding of the works or cultural practices they consider. Where appropriate (for example, in considering a philosophical work) they engage in critical evaluation of the work.
- Students examine how the work under consideration arose out of its cultural or historical context.
- The course explores the role that the work plays in the larger society of which it is a part.

Biological Sciences

Students need to have a measure of biological literacy that will allow them to analyze new biological information as it becomes available, put it into the framework of previous knowledge, and appreciate how it affects the earth's organisms. Because biology is not static, the important element of biological literacy is in students seeing for themselves how biology is done and reaching an appreciation of the creative spark that drives discovery in biology. This requires providing students with opportunities to formulate and test hypotheses, interpret experimentally obtained data, and draw conclusions from the data that may challenge their preconceptions.

CLE Guidelines for Biological Sciences Courses

Courses that meet the Biological Sciences Core requirement might be broad survey courses or focus more specifically on a particular type of organism, topic, or process of living organisms. Courses in the Biological Sciences Core requirement must present the evidence for our current knowledge (i.e.,

how did we learn what we know), guide students through the process of acquiring knowledge using the tools of the discipline, present the limitations of current research, convey the message that questions of the future may require new ways of gathering information, and emphasize that new knowledge may require substantial revision of our current thinking. Courses that guide students through an understanding of examples from the primary research literature in biological sciences are encouraged. The aim is not to simply capture a snapshot of what we currently know in a given field, but to guide students to develop skills that will enable them to undertake analysis of information pertaining to biological sciences.

Because interpretation of biological data relies so intimately on quantitative skills, courses in this Core area also need to demonstrate integration of mathematical thinking, such as interpretation of graphs and figures, to a level suitable for an introductory, non-major course.

To satisfy the Biological Sciences Core requirement, a course must meet these criteria:

- The course provides experimental evidence for how current knowledge in biology was obtained.
- The course explores examples of unanswered questions in biology.
- Students integrate mathematical thinking into analysis and interpretation of data.
- The course includes at least two hours of laboratory per week, in which students have first-hand experience in producing and handling data, using tools of the discipline (i.e., thinking and working like a biologist).
- The course includes laboratory experiences in which students do hands-on testing of principles presented in the lecture portion of the course; some laboratory sessions may include computer simulations of experiments or observations that otherwise cannot readily be addressed during a semester (e.g. evolution of a population over thousands of years).
- The course provides laboratory experiments that allow students to confront interpretation of mistakes and unexpected results.

A lab experience in the Biological Sciences Core requires students to do one or more of the following:

- perform hands-on experiments, measurements, or analyses that test basic concepts or hypotheses about living organisms;
- analyze, interpret, and draw conclusions from data;
- examine the relationship between structure and function of biological specimens;
- explore biological systems to understand how individual organisms interact with each other and the environment;
- use mathematical models to describe or predict responses and behaviors in living systems.

Historical Perspectives

Courses in the Historical Perspectives core investigate how historical knowledge is produced from artifacts (primary sources) that have remained from the past. By discerning between ‘the past’ as that which happened and ‘historical knowledge’ as what we know about the past, these courses self-consciously examine the methods and sources people (and not just professional historians) use to produce historical knowledge. A central question in any Historical Perspectives course concerns both the value and the limitations of certain sources, be they written, oral, visual, or material. The incomplete and partial nature of the sources, and the distinctive perspective any given individual

brings to them, leads inevitably to multiple and conflicting interpretations of the past. And yet not all historical analyses and arguments are equally persuasive; there are (changing) rules about what constitutes reliable and trustworthy history. Historical Perspectives courses equip students with a deep understanding of particular approaches to the past and teach them to think critically and in an informed manner about their own and others' assumptions and assertions about the human past.

CLE Guidelines for Historical Perspective

Each course admitted to the Historical Perspectives core must have a three-part mission, one related to content, namely past human experience in specific contexts, another to questions of methodology and how historical knowledge is produced, and a third that involves students in analyzing and interpreting primary sources. Not all history or historically informed courses meet the criteria for Historical Perspectives.

First, Historical Perspectives courses examine the human past, studying the beliefs, practices, and relationships that shaped human experience over time. Historical Perspectives courses must be primarily about *people* and their changing experiences in particular contexts, whether the sources examined in a course are hieroglyphic political tracts in ancient Egypt, oil paintings depicting gentility in Renaissance Italy, court records from nineteenth-century Brazil, or the artifacts of popular culture that create and perpetuate memories of the 1989 Tiananmen Square protests in China. Change over time is a fundamental category of analysis in Historical Perspectives courses, and attention to the specific and distinctive historical context is crucial.

Second, an explicit and significant focus of any Historical Perspectives course must be on the methods and conceptual frameworks with which scholars interpret primary sources. Students will learn about and critically assess methods and concepts employed in producing historical knowledge.

Third, students must themselves work with primary sources, i.e. materials produced in the time period under investigation, whether written, oral, visual, or material, and either in the original language or in translation. Students will learn how to analyze primary sources and do the interpretive work that makes meaning out of historical material. Students will also evaluate the uses and the limitations of those sources. Historical Perspectives courses should consider how the questions we ask and the sources available to us shape our knowledge of the past and our understanding of its significance.

To satisfy the Historical Perspectives Core requirement, a course must meet these criteria:

- The course examines the human past, studying the beliefs, practices, and relationships that shaped human experience over time.
- The course focuses on change over time, giving attention to specific historical contexts.
- The course introduces and critically assesses methods and concepts employed in producing historical knowledge.
- Students work with primary sources themselves, learning how to do the interpretive work that makes meaning out of historical material.
- Students evaluate the uses and the limitations of certain primary sources.
- The course considers how the questions we ask and the sources available to us shape our knowledge of the past and our understanding of its significance.

Literature

Courses that meet the Literature Core requirement will introduce students to the challenges and joys of the close study of literature. Literature uses language in creative and powerful ways to entertain and engage, instruct and inspire, and shock or sadden us. In so doing it enlarges our understanding of the human experience, transforms our thinking and our lives, and helps us to imagine new possibilities for our society and the world. Penetrating analysis of literature teaches the power of literature to express the breadth and complexity of human lives past and present, near and far. Careful study of literature can enrich students' individual and professional lives and make them more understanding and reflective members of their multiple communities.

Courses that meet the Literature Core requirement focus on the ways in which the written word articulates and explores human experience. Courses that meet this requirement may be offered in any world language that has a strong body of written literature. Like other courses in the arts and humanities, literature classes analyze creative works, but their special emphasis is on the relationship between language and meaning in literary texts: we may find more complex meanings when we examine the author, the readers, the social or historical context, as well as the written text itself. Because informed readers of literature appreciate the aesthetic qualities of good writing, courses about literature teach students to work with language as both a vehicle through which ideas and images are expressed and as the material from which aesthetic works are composed. A poem is, for example, a text that communicates ideas as well as an aesthetic object that is composed of words (just as a painting conveys ideas and emotions but is made up of paint and brush strokes).

CLE Guidelines for Literature Courses

To satisfy the Literature Core requirement, a course must meet these criteria:

- The course focuses on analysis of written works of literature (fiction, creative nonfiction, poetry, and others), and specifically addresses issues of language and meaning in the works studied.
- Students study the formal dimensions of literature: they study how the authors' choices – such as the choice of genre, style, character presentation, vocabulary, meter or the use of symbolism – have created the literature's effect of powerfully evoking the reader's response.
- The course examines the social and historical contexts of the literary works as well as their content.

Mathematical Thinking

Mathematics has a dual nature: It is a science and way of thinking, with its own language designed for logical discourse, and it also provides unique approaches to describing and understanding reality. Much of modern life rests on intellectual and scientific developments that are directed by mathematical equations and algorithms: space flight, computers, the Internet, weather modeling, security codes, and a host of others. To function as effective and responsible citizens, students need some understanding of the analytic processes that underlie these developments. Students should have some familiarity with two primary aspects of mathematical thinking.

The first aspect is mathematics as a body of knowledge. It is concerned with such issues as enumeration and computation, quantifying change, geometrical figures, shape, and symmetry. It deals with these topics via precise, unambiguous symbolic language. Students need some facility in

communication with these symbols to appreciate the power of its manner of expression. Students should understand some of the esthetically beautiful ideas and their history that have implications so powerful that science and technology would be impossible without this underpinning—selected from topics such as number theory, geometric analysis, calculus, probability and statistics, combinatorics, and symbolic logic, among others. Students should appreciate that mathematical results are established by logical proofs or algorithms with rigorous methods for testing whether something in a symbolic language is an acceptable proof.

The second aspect of mathematical thinking is its broad applicability, its “unreasonable effectiveness” in the natural, biological and engineering sciences, as well in many of the social sciences and psychology. The essential concept is “mathematical modeling.” Using mathematical ideas many problems that arise in the everyday world can be abstracted and expressed as mathematical problems. The solutions, often obtained via scientific computation, are then applied to the original problem, and their conformance to reality checked. These elegant solutions to applied problems are necessary for a deeper understanding of the forces that continuously transform our world.

CLE Guidelines for Mathematical Thinking Courses

There should be a variety of courses on mathematical thinking if the diverse needs of our students are to be met, and faculty from a variety of disciplines should participate. Responsibility for introducing students to mathematical thinking rests mainly with the courses in this part of the Core, but courses in the physical, biological, applied, and some of the social sciences will also properly address these issues. While courses should have applied dimensions, all should focus on the manipulation of mathematical or logical symbols. An appropriate course needs both to involve education in mathematical literacy, including communication with the special symbols of mathematics or logic (not prose only), and indication of how these concepts could be applied to analyze applied problems.

The Council urges the continued development of a different approach for those students for whom the traditional calculus route is inappropriate or not required for subsequent course work. Special courses dealing with “Great Ideas in Mathematics and its Applications” could be substantially more effective in providing these students with an understanding of diverse mathematical ways of thinking.

Acceptable tracks are: 1) courses dealing with “Great Ideas in Mathematics and its Applications,” 2) calculus or other traditional math courses, 3) formal logic or applied courses that emphasize mathematical modes of thinking that go beyond rote computational skills. Courses on specific applications of mathematics, such as statistical methods, to a particular field are fine if there is emphasis on underlying mathematical ideas, rather than just recipes for the particular application.

To satisfy the Mathematical Thinking Core requirement a course must meet these criteria:

- The course exhibits the dual nature of mathematics both as a body of knowledge and as a powerful tool for applications.
- Students manipulate mathematical or logical symbols.
- The prerequisite math requirements and mathematics used must be at least at levels that meet the standards for regular entry to the University.

Physical Sciences

The physical science core requirement is intended to acquaint students with the theory and practices of some aspects of this broad area of inquiry. Courses that satisfy the Physical Sciences core requirement will expose students to key basic concepts and results regarding the natural laws, processes and properties of matter, as they pertain to a particular discipline, and will expose students to the processes of producing such knowledge, albeit on a basic level. Courses fulfilling this requirement may be part of the fundamental coursework taken by majors in the physical sciences, or they may be designed for students who have a limited exposure to a particular field and desire a general introduction to key concepts and results of a given discipline.

CLE Guidelines for Physical Sciences

All knowledge in the physical sciences is based upon empirical data and creative, often collaborative work in producing and reflecting about it; and, thus, a proper exposure to the ways of knowing and thinking in the physical sciences requires a laboratory or fieldwork component.

To satisfy the Physical Science Core requirement, a course must meet these criteria:

- The course imparts an understanding of physical phenomena by analyzing and describing the nature, constitution, and properties of non-living matter and energy.
- Students employ mathematical or quantitative analysis in the description and elucidation of natural phenomena.
- The course includes a laboratory or field work component, consisting of, on average, two hours per week, which may involve direct experimentation, fieldwork, or computer simulations.
- The course provides an understanding of the scientific method, by which observations of the natural world lead to the formulation of hypotheses or explanations of physical phenomena that are then empirically tested by experiment or observation.

A lab experience in the physical sciences requires students to do one or more of the following:

- perform hands-on experiments, measurements, simulations or analyses that test basic concepts or hypotheses;
- quantitatively examine and test phenomena that may be described in terms of principles recognized within the discipline;
- do discovery-based experiments.
- manipulate data sets.

Social Sciences

The social sciences comprise a broad range of topics, approaches, and methodologies from the humanistic to the mathematical. Broadly, social scientists focus on individual behavior in the context of society, and explore the many dimensions of human practices including economics, education, politics, cultures, human development, cognition, and space. Knowledge of the social sciences brings students a better understanding of themselves in relation to others; shows how individuals, institutions, events, and ideas are connected; leads students to be more thoughtful and active citizens; and enhances personal capacities and welfare. Through the social sciences students more fully comprehend the patterns and problems of their own and other societies. Social scientists work at multiple spatial and temporal scales, from the individual to the global, and from periods of

days to centuries. Social scientists may use advanced computation, models, and empirical research to study markets and market-like behavior; use medical imaging to understand the human mind; deploy experimental and quasi-experimental methods to delineate the cognitive and affective processes that guide human behavior; study public spaces, the concept of “place,” and advanced mapping techniques. Social scientists also may undertake ethnographic research to interpret and compare cultures and group practices.

A core course must address questions that are central to social science and relate to current societal themes, such as race and class, environmental equity, economic development, world economies, and local cultures. Courses that fulfill the Social Science Core requirement must expose students to appropriate quantitative and/or qualitative approaches and methods for the collection and analysis of data, including textual analysis, discourse analysis, surveys, interviews, experimental and quasi-experimental methods, focus groups, ethnographic work, statistics, modeling, or spatial analysis. Courses in the Social Science Core are not required to meet pre-defined standards for disciplinary, theoretical, or methodological content.

CLE Guidelines for Social Sciences Courses

To satisfy the Social Science Core requirement, a course must meet these criteria:

- The course demonstrates how social scientists describe and analyze human experiences and behavior.
- Students manipulate social science data (primary or secondary) using one or more of the primary quantitative or qualitative methods for collecting and/or analyzing these data.
- The course identifies key disciplinary resources and evaluates their quality.
- The course explores the interrelationships among individuals, institutions, structures, events and/or ideas.
- Students examine the roles that individuals play in their cultural, social, economic, and/or political worlds.
- The course promotes multidisciplinary ways of thinking that can be used to synthesize and analyze local, national, and global issues, and the connections among these.
- Students to work collaboratively and individually to construct new knowledge.

THEME COURSES

Theme courses have the common goal of cultivating in students a number of habits of mind:

- thinking ethically about important challenges facing our society and world;
- reflecting on the shared sense of responsibility required to build and maintain community;
- connecting knowledge and practice;
- fostering a stronger sense of our roles as historical agents.

With their emphasis on compelling contemporary issues, the Themes offer opportunities for students to consider timely and engaging questions in all of their complexity; to reflect on ethical implications; to discuss and to debate; to formulate opinions; to have their opinions respectfully challenged and to respectfully challenge the opinions of others; and to connect what they are learning to their own lives and to the world around them. Courses in these areas offer students a sustained opportunity to engage in difficult debates around moral, legal, and ethical issues that require critical inquiry from a variety of perspectives and the cultivation of independent thinking. Like core courses, theme courses are taught by regular faculty or by instructors on continuing appointments. Departments proposing instructors other than regular faculty must

provide documentation of how such instructors will be trained and supervised to ensure consistency and continuity in the courses.

Civic Life and Ethics

Education in civic life and ethics will help students as they continually shape their identities and character in the context of civic life and public engagement. Civic life and public engagement is not simply political activity; it inevitably encompasses the everyday actions that individuals take in their personal, professional, and public lives. Ethics involves acquisition of insight into experiences that help us to make decisions about what is good or bad, right or wrong, just or unjust – and to recognize the ambiguity inherent in many public problems.

The Civic Life and Ethics Theme explores the social construction of ethics and the role of ethics in decisions that affect the general population in their everyday lives. It also explores how decisions are made or influenced by public engagement. Students will be best equipped to manage contemporary problems if they learn how civic and ethical principles have been historically developed, critically assessed by individuals and groups, and negotiated within specific cultural settings. It is desirable but not required of this Theme that students have opportunities to apply their knowledge and skills to contemporary problems in civic life.

CLE Guidelines for Civic Life and Ethics Courses

To satisfy the Civic Life and Ethics Theme requirement, a course must meet these criteria:

- The course presents and defines ethics and the role of ethics in civic life.
- The course explores how the ethical principles of a society or societies have been derived and developed through group processes, and debated in various arenas.
- The course encourages students to develop, defend, or challenge their personal values and beliefs as they relate to their lives as residents of the United States and members of a global society.
- Students have concrete opportunities to identify and apply their knowledge of ethics, both in solving short-term problems and in creating long-term forecasts.

Diversity and Social Justice in the United States

Understanding the internal diversity of the United States and the complex ways in which diversity can be both an asset and a source of social tensions is integral to an informed, responsible, and ethical citizenry. Courses fulfilling the Diversity and Social Justice in the United States Theme requirement may emphasize very different content and be taught from a variety of disciplinary or interdisciplinary perspectives. They promote historical and contemporary understanding of how social differences (such as race, ethnicity, class, gender, religion, sexual orientation, and disability) have shaped social, political, and cross-cultural relationships within the United States. More specifically, courses fulfilling this Theme will critically investigate issues of power and privilege, instead of merely promoting a surface-level “celebration” of diversity. The objective of this requirement is to ensure that students’ educational experience and knowledge-base of the United States is inclusive of group and social differences. Through this type of educational experience, our students will be better able to live and work effectively in a society that continually grows more diverse and inclusive.

CLE Guidelines for Diversity and Social Justice in the United States Courses

To satisfy the Diversity and Social Justice in the United States Theme requirement, a course must meet these criteria:

- The course explores one or more forms of diversity through the multi-layered operation of social power, prestige, and privilege.
- The course advances students' understanding of how social difference in the U.S. has shaped social, political, economic, and cross-cultural relationships.
- Students examine the complex relationship between a particular form of diversity in the United States and its impact on historical and contemporary social dynamics, democratic practices, and institutional stratification.
- The course enhances students' understanding of diversity as a social construct that has promoted the differential treatment of particular social groups and served as the basis for response to subsequent social inequities by these groups.
- The course engages scholarship that has emerged in response to epistemological gaps in information and perspective in traditional disciplines.

The Environment

As the 21st century begins, there is probably no set of issues on which academic research, educational instruction, the demands of public policy, and the requirements of informed citizenship are more powerfully joined than those relating to the environment. Over the last half century, even with a doubling of the human population, human health and per capita income have improved dramatically in many parts of the world as supplies of food and energy increased in combination with advances in technology. This success has required a vast increase in the intensity of human use of the environment with the inadvertent, environmental impacts such as global climate change, air and water quality degradation, loss of biological diversity, and invasions by exotic species. During the coming 50 years, the human population is projected to increase by 40%, leading to further stresses on the environment. Societal policies and practices must change to minimize environmental impacts. Now more than ever all citizens need to be engaged with the science and policy surrounding the environment to minimize unintended environmental impacts from the local to global scale.

CLE Guidelines for the Environment Courses

Environmental issues are complex. Finding solutions to these environmental issues will have students vigorously debating the myriad of solutions; weighing the costs with the benefits and tradeoffs among alternative policies and practices; exploring the roles of science and technology; learning to become involved, informed, and constructive citizens after graduation. Issues such as sustainability and the ethics of intergenerational equity must be weighed against meeting current needs and wants. The pursuit of solutions to environmental issues is a highly synthetic and interdisciplinary endeavor. Therefore, courses that fulfill this Theme need to connect students, in explicit ways, to solving problems. A broad array of disciplines, from physical and biological sciences, to the social sciences and humanities need to be integrated into the proposed solutions, which must be based on science, but which will be implemented and sustained only if they are consistent with the ethics and values of society.

To satisfy the Environment Theme requirement, a course must meet these criteria:

- The course raises environmental issues of major significance.
- The course gives explicit attention to interrelationships between the natural environment and human society.
- The course introduces the underlying scientific principles behind the environmental issues being examined
- Students explore the limitations of technologies and the constraints of science on the public policy issues being considered.
- Students learn how to identify and evaluate credible information concerning the environment.
- Students demonstrate an understanding that solutions to environmental problems will only be sustained if they are consistent with the ethics and values of society.

Global Perspectives

Undergraduates must develop the competence to function effectively and ethically in a complex, rapidly changing world that is increasingly interdependent yet fraught with conflicts and disparities. The Global Perspectives Theme assures that graduates from the University have had at least one significant academic exposure to the world beyond U.S. borders, and the opportunity to consider the implications of this knowledge for the international community and their own lives.

CLE Guidelines for Global Perspectives Courses

Courses in many disciplines and interdisciplinary areas may be suitable for the Global Perspectives Theme, and efforts should be made to assure that all world regions are represented among courses meeting this requirement. Topics addressed in a Global Perspectives Theme course might include (but are not limited to) contemporary popular culture; nationalism; globalization; human rights; comparative politics, economics, or cultures; historical studies; different modes of material and political life; regional, ethnic, or religious conflict; artistic and literary responses to colonialism or the colonial legacy, and the role of governments, corporations, or international organizations. Through concentrated study of a particular country, culture, or region, through in-depth focus on a particular global issue with reference to two or more parts of the world, or through the study of global affairs by a comparative method, students may cultivate a broader and more thoughtful perspective; increase their global awareness; and learn the importance of the particularities of place, time, and culture to understanding our world.

To satisfy the Global Perspectives Theme requirement, a course must meet these criteria:

- The course, and most or all of the material covered in the course, focuses on the world beyond the United States.
- The course either (1) focuses in depth upon a particular country, culture, or region or some aspect thereof; (2) addresses a particular issue, problem, or phenomenon with respect to two or more countries, cultures, or regions; or (3) examines global affairs through a comparative framework.
- Students discuss and reflect on the implications of issues raised by the course material for the international community, the United States, and/or for their own lives.

The Council also recommends that *all* Learning Abroad experiences for which students earn at least three college credits should fulfill the Global Perspectives Theme requirement.

Technology and Society

Advances in science and engineering produce technologies that have a profound impact on society. Informed and engaged citizens must be thoughtful rather than passive consumers of new technology. Because developing innovative technologies is essential to the University's mission, it is crucial that students and faculty reflect upon the complex and compelling ethical issues raised by technological change and its effects on society. Society, explicitly or indirectly, defines the context in which new technologies are developed, the ways in which they are adopted and implemented, and the rules by which they are used. Students need to be prepared to make sense of, evaluate, and respond to present and future technological changes that will shape their workplaces and their personal and public lives.

CLE Guidelines for Technology and Society Courses

Technology and Society Theme courses consider the impact of technology on society as well as how society has shaped, used, and responded to new technology. The rapid pace of technological advancement requires thoughtful and meaningful consideration so that the use of technology reflects the shared needs and values of society. Technology and Society Theme courses should introduce students to a broad range of perspectives on the adoption and use of certain technologies.

Courses that fulfill the Technology and Society Theme requirement will come from a wide range of colleges and units across the university. The emphasis on both the underlying science and the societal context may require current courses that are primarily science and/or engineering oriented to enhance social science aspects of the course. Likewise, courses that focus primarily on the societal context of technology will need to address the underlying science and engineering.

To satisfy the Technology and Society Theme requirement a course must meet these criteria:

- The course examines one or more technologies that have had some measurable impact on contemporary society.
- The course builds student understanding of the science and engineering behind the technology addressed.
- Students discuss the role that society has played in fostering the development of technology as well as the response to the adoption and use of technology.
- Students consider the impact of technology from multiple perspectives that include developers, users/consumers, as well as others in society affected by the technology.
- Students develop skills in evaluating conflicting views on existing or emerging technology.
- Students engage in a process of critical evaluation that provides a framework with which to evaluate new technology in the future.

STUDENT LEARNING OUTCOMES

In fall 2003, the Council for Enhancing Student Learning (CESL) proposed a common set of undergraduate Student Learning Outcomes (SLOs) for all University of Minnesota students. The outcomes approved by the University Senate in spring 2007 are intended to help departments and curriculum committees identify how both individual courses and entire curricula develop the kind of well-educated graduates we expect for the University of Minnesota. The SLOs are very closely connected to the goals of liberal education:

At the time of receiving a bachelor's degree, students:

- *Can identify, define, and solve problems*
- *Can locate and critically evaluate information*
- *Have mastered a body of knowledge and a mode of inquiry*
- *Understand diverse philosophies and cultures within and across societies*
- *Can communicate effectively*
- *Understand the role of creativity, innovation, discovery, and expression across disciplines*
- *Have acquired skills for effective citizenship and life-long learning.*

WRITING INTENSIVE REQUIREMENT

Courses may continue to be submitted for both LE and WI designation, though the WI review will now be handled by the Campus Writing Board. Reviews by both bodies will be coordinated as much as possible to assure timely responses. The CLE strongly supports writing in the curriculum, and emphasizes the importance of writing as part of a liberal education curriculum.