

SUNY OSWEGO
GE2000: COURSE DEVELOPMENT & SUBMITTAL GUIDELINES
(<http://www.oswego.edu/gened>)

This document presents course development guidelines for General Education 2000. The program was implemented for all incoming freshmen in fall 2000. The document is also available, along with others, on the GE2000 website. For up-to-date approved course lists, visit the Gen Ed web site listed above.

GE2000 has been shaped by directives from Albany (e.g., the December 1998 Board of Trustees resolution on Gen Ed, and subsequent definitions and elaborations provided by the Provost's Advisory Task Force and Advisory Council on General Education) and by the deliberations of our own Faculty Assembly, which approved the Oswego version of GE2000 in December 1999. The guidelines that are here attached reflect both external mandates and internal decisions.

Guidelines for GE2000 REQUIREMENTS include:

BASIC SKILLS

1. Writing
2. Computer Literacy
3. Critical Thinking (see "Basic Skills")

4. FOREIGN LANGUAGE

KNOWLEDGE FOUNDATIONS

5. Fine & Performing Arts
6. Humanities
7. Mathematics
8. Natural Sciences
9. Social & Behavioral Sciences

AMERICAN AND WESTERN HERITAGE

10. American History
11. Western Civilization

HUMAN DIVERSITY

12. Tolerance & Intolerance in the United States
13. Non-Western Civilizations

INTELLECTUAL ISSUES

14. Explorations in the Natural Sciences
15. Cultures & Civilizations OR Self & Society

INFUSED COMPETENCIES

- Information Management
- Oral Proficiency

The Board of General Education reviews for approval courses proposed for inclusion as a General Education offering. The chairperson of the department offering the course must send one copy of the course outline (UCC format) to the Director of General Education, along with a cover letter explaining the suitability of that course for a specific requirement in the program.

Please submit one paper copy and one electronic copy of course outlines.

**Checklist for Courses
Submitted to the Board of General Education**

(Reference Documents General Education Board, - New Course Development, 11/5/96 General Education Board, New Course Development Guidelines, 4/3/97)

- A. Cover Letter – Course submissions must be accompanied by a cover letter from the Department Chair that:
1. Lists each course submitted in the packet by course number and title.
 2. Designates the area(s) in the General Education program(s) for which the Board is being asked to consider each course: Basic Skills: Writing; Basic Skills: Critical Thinking; Basic Skills: Computer Literacy; Knowledge Foundations: Fine & Performing Arts; Knowledge Foundations: Humanities; Knowledge Foundations: Math; Knowledge Foundations: Natural Sciences; Knowledge Foundations: Social & Behavioral Sciences; Human Diversity: Tolerance & Intolerance in the U.S.; Human Diversity: Global, International, Geographic Awareness (GE98); Human Diversity: Non-Western Civilizations; Intellectual Issues: Explorations in the Natural Sciences; Intellectual Issues: Cultures and Civilizations; Intellectual Issues: Self and Society; Advanced Expository Writing.
 3. Designates for each course whether it is a course previously approved by UCC or is a new course being submitted concurrently to UCC.
 4. Explains whether this packet of course submissions completes the department's plans for courses within each category and, if not, when the Board can expect further courses in that category to be submitted.
- B. Course Descriptions of New Courses and Courses Previously Approved by UCC— Departments should submit complete COURSE OUTLINES in the standard, current UCC format. (Please do not send individual course syllabi. We ask that departments keep copies of syllabi of approved courses on file for later assessment purposes.)

The Board will ask the following general questions of courses:

1. Have the COURSE OUTLINE sections labeled Justification, Course Objectives, and Course Outline been written or revised to emphasize the General Education guidelines appropriate to the category for which the course is being submitted? (If this question is answered negatively, the course will be returned to the submitting department.)
2. Has the course bibliography been updated recently to reflect current scholarship in the field?

Please submit one paper copy and one electronic copy of course outlines.

COURSE GUIDELINES

INFUSED COMPETENCIES

Information Management

SUNY-GER Learning Outcomes – Students will:

- understand and use basic research techniques; and
- locate, evaluate and synthesize information from a variety of sources.

Oral Proficiency

SUNY-GER Learning Outcomes – Students will:

- develop proficiency in oral discourse; and
- evaluate an oral presentation according to established criteria.

BASIC SKILLS

1. Writing

SUNY-GER Learning Outcomes — Students will:

- produce coherent texts within common college-level written forms;
- demonstrate the ability to revise and improve such texts;
- research a topic, develop an argument, and organize supporting details;

I. GOALS AND OBJECTIVES

- A. Courses in this area will develop students' ability to present their ideas and information in a clear, effective manner, and to use the organizational processes of writing as a heuristic for discovery and invention. Students will develop expository writing skills to be used within the context of their special areas of interest and expertise.
- B. ENG 102 is the only course approved for this requirement.

2. Computer Literacy

SUNY-GER Learning Outcomes – Students will:

- perform the basic operations of personal computer use

I. GOALS AND OBJECTIVES

- A. Courses in this area will develop students' ability to use computer hardware and software for standard tasks (e.g., word processing, spreadsheets, databases, the Internet, multi-media, and text/graphics management). Students will also understand the capabilities of computer technology, as well as current and evolving developments within their own areas of interest.

- B. Proposals may also be submitted to satisfy this requirement with a course or courses “embedded” in a major or minor program, as long as that course or those courses (considered collectively) address the learning objectives given above.

3. Critical Thinking

SUNY-GER Learning Outcomes — Students will:

- identify, analyze, and evaluate arguments as they occur in their own or others' work;
- develop well-reasoned arguments.

I. GOALS AND OBJECTIVES

- A. The General Education curriculum at SUNY Oswego affirms that students should acquire specific skills of thought and expression, such as critical thinking and writing, that should be learned across the curriculum and embedded within several courses. This commitment to critical thinking is reflected in the General Education Basic Skills area of Critical Thinking. Critical thinking means the ability to evaluate the assumptions, evidence, and inferences of what one reads and the ability to present one's ideas in a sound, logical, and thorough argument.
- B. There are specific skills which critical thinkers use, and these specific skills are the main subject matter in a critical thinking course. For instance, the skill of recognizing common logical fallacies helps thinkers to reject slick but empty persuasive approaches. The skill of recognizing when reasons are being given for a position helps thinkers to begin to assess the quality of those reasons. The skill of constructing a strong argument for one's own position helps thinkers to persuade others by presenting thoughtful reasons to them. These and other specific thinking skills, which may be evaluated by standard norms, are typically the focus of instruction in college-level critical thinking courses.
- C. While the General Education Board hopes that there are elements of critical thinking in every course on campus, we recognize that, in the same way many students need a basic writing course specifically to teach them how to construct a strong essay, they also need a critical thinking course specifically to teach them how to construct a strong argument. In practical terms, this means that departments choosing to teach critical thinking should plan a free-standing course in critical thinking within their own disciplinary context, rather than simply adding a critical thinking textbook or unit to an existing introductory course in a particular discipline. However, the skills acquired in a Critical Thinking course should be widely transferable to students' course work across the curriculum.
- D. Basic Skills Critical Thinking course should last one semester. All Basic Skills Critical Thinking courses should directly instruct students in the necessary critical reading, listening, and viewing sub-skills. In addition, each Basic Skills Critical Thinking course should also teach specific skills in either Argumentative Presentation or Formal Logic. In other words, a Basic Skills Critical Thinking course will consist of Critical Reading, Listening, and Viewing AND Argumentative Presentation OR Critical Reading, Listening, and Viewing AND Formal Logic.

II. GUIDELINES

A. Critical Reading, Listening, and Viewing

1. Given a variety of college-level reading passages, the course will teach students to:
 - a. state the question at issue;
 - b. state the writer's purpose;
 - c. state the main idea of each given passage;
 - d. identify instances of emotive language and common rhetorical devices used to persuade the reader (e.g., weasel words, hyperbole, etc.);
 - e. identify important claims made by the writer;
 - f. accurately paraphrase important claims made by the writer;
 - g. identify instances of vagueness and ambiguity;
 - h. clarify word meanings through the use of appropriate kinds of definitions;
 - i. state important assumptions of the writer;
 - j. identify inconsistencies internal to the text;
2. Given college-level reading passages which contain arguments, the course will teach students to:
 - a. distinguish between passages which contain arguments and those which do not;
 - b. state relevant assumptions as premises or conclusions, whenever appropriate;
 - c. identify inconsistencies internal to the text;
 - d. reconstruct the author's argument, stating premises and conclusion;
 - e. distinguish between validity and soundness;
 - f. assess each premise as to its overall credibility, taking into account its consistency with background knowledge and the evidence for it;
 - g. identify any informal fallacies which may be present in the premises, conclusion, or argument as a whole (e.g., begging the question, straw man, etc.);
 - h. evaluate the overall logical cogency of the argument.
3. Given claims in the popular media, the course will teach students to:
 - a. distinguish between emotional appeals and rational appeals;
 - b. identify common techniques of non-argumentative persuasion and explain how they work to persuade the audience;
 - c. identify informal fallacies present in advertisements, political speeches, and other media productions;
 - d. state important assumptions made by the advertiser, politician, newscaster, or other source.
4. Given a variety of college-level explanations, the course will teach students to:
 - a. distinguish between arguments and explanations;
 - b. categorize and evaluate types of explanations.

- B. Argumentative Presentation For courses emphasizing Argumentative Presentation, for given issues, the course will teach students to:
1. develop and state a clear thesis on each issue;
 2. generate supporting reasons for her or his thesis on each issue;
 3. organize these elements into a formal argument for that thesis;
 4. write an argumentative essay (or alternative argumentative presentation, e.g., a spoken or artistic presentation) of several paragraphs or parts on each issue which incorporates and develops this argument.
- C. Formal Logic For courses emphasizing Formal Logic instead of Argumentative Presentation, learning objectives selected from the lists below should be addressed:
1. Deductive Logic: Given deductive arguments in natural language, the course will teach students to:
 - a. translate them into standard deductive form, using syllogistic logic and/or symbolic logic;
 - b. use a fully formalized language to represent the logic of assertions;
 - c. apply the concept of consistency in determining the logical truth, equivalence and implications of assertions;
 - d. reconstruct unstated premises or unstated conclusions;
 - e. evaluate them according to standard criteria for validity in syllogistic logic and/or symbolic logic.
 2. Inductive Logic: Given inductive arguments, including arguments from the natural and social sciences, the course will teach students to:
 - a. assess the level of evidential support which the premises provide for the conclusion;
 - b. identify and evaluate analogies;
 - c. identify and evaluate statistical arguments;
 - d. identify and explain common statistical fallacies;
 - e. calculate probabilities using the probability calculus;
 - f. generate causal explanations using Mill's methods;
 - g. identify differences between scientific and non-scientific explanations.

III. ASSESSING COMPETENCY WITHIN EACH COURSE

- A. Each faculty member will develop her or his own assessments. Many of the standard textbooks for college-level critical thinking courses are accompanied by test item banks, sample quizzes, etc.

IV. IMPLEMENTATION

- A. It is impossible to teach the critical analysis of texts without texts to analyze. So the question arises: What texts are appropriate for such a course? Most of the existing critical thinking textbooks use a variety of readings of general interest. This approach has the advantage of helping students see that critical thinking skills are not context-specific. But it is also possible to design a free-standing Basic Skills Critical Thinking course in which there is a specific theme present in the texts used for analysis and criticism and in the issues students address in their

argumentative presentations. For example, judging from the available textbooks, one popular such theme is the rise of junk science and popular interest in the paranormal, using arguments from psychics and UFO specialists, etc., as texts for analysis and criticism. While the main emphasis of any Basic Skills Critical Thinking course should be on developing a basic understanding of the identified microskills of critical thinking, the creative integration of discipline-specific themes is encouraged.

4. FOREIGN LANGUAGE

SUNY-GER Learning Outcomes – Students will demonstrate:

- basic proficiency in the understanding and use of a foreign language; and
- knowledge of the distinctive features of culture(s) associated with the language they are studying.

Upon completion of the foreign language requirement, students should be able to demonstrate: a) basic proficiency in the understanding and use of a foreign language and b) knowledge of the distinctive features of culture(s) associated with the language they are studying.

I. GOALS AND OBJECTIVES

- A. The purpose of the Foreign Language requirement is to ensure that students acquire basic proficiency in the understanding and use of a foreign language and knowledge of the distinctive features of a culture or cultures associated with the language they study.
- B. This requirement can be satisfied by
 1. successful high school study of a foreign language through Regents level 4;
 2. successful high school study of two foreign languages (at least two years of each through Regents level 2);
 3. or completion of a 102-level foreign language course (or its equivalent: e.g., CLEP) in college.
 4. The language requirement may also be satisfied by an equivalent proficiency in a native American language, as demonstrated by comparable high school study (i.e., four years) or by an interview with a faculty member competent in the language in question.
 5. Non-native-English-speaking foreign students who have passed an English as a Second Language exam upon acceptance to the college are exempted from this requirement.
 6. Only students in Teacher Education or other programs leading to careers where there is likely to be significant contact with the hearing impaired may use ASL to satisfy the Foreign Language Requirement.

5.— 9. KNOWLEDGE FOUNDATIONS

According to the General Education curriculum approved by Faculty Assembly on 29 April 1996, “The purpose of Knowledge Foundations courses is to expose students to a breadth of

knowledge through the exploration of a range of disciplines at the introductory level. Knowledge Foundations courses are intended to introduce students to the basic content, methodology, and modes of analysis/inquiry of the disciplines.” This means that the Knowledge Foundations courses are both **introductory** and **discipline-based**. In some instances, introductory courses already existing in a discipline may meet the Knowledge Foundations requirement; in other instances, new courses may have to be created. In considering courses for the Knowledge Foundations requirement, faculty should keep in mind this question: **Since this course may be the only exposure most students will have to my discipline, what is important for them to know?**

The major goal of Knowledge Foundations courses in the natural sciences is to provide an understanding of the natural science principles that operate in nature and of the natural phenomena occurring in our everyday environment. This goal is to be accomplished by developing a background of basic concepts and an associated framework of skills and attitudes that facilitates an understanding of the fundamental principles of natural science, thereby providing students with the proper scientific background to make informed judgments on issues that affect the community, the nation, and the world; to think critically about media portrayals of science and technology issues; and to make informed decisions that require gathering data, reading appropriate material, asking questions, and being able to distinguish scientific fact from opinion.

A good way to evaluate the appropriateness of a discipline-based course for a Knowledge Foundations requirement is to ask if this particular course is the best one available in your department to teach non-majors--students outside your discipline--about your discipline in a way that will enhance their lives. Will it help students become more thoughtful consumers of your discipline in the rest of their academic careers and in the rest of their lives? Knowledge Foundations courses are developed for the non-major; they provide a significant foundation for understanding which can be applied in a broader sense--hence the term “general” education.

EXEMPTIONS: Students majoring, minoring, or concentrating in any of the five areas are assumed to have met that area’s requirement (with appropriate introductory-level courses taken for the major, minor, or concentrate) and are waived out of the requirement in that area. Business majors are exempt from the Social and Behavioral Sciences requirement; Education majors are exempt from the area of their concentrate.

5. Fine and Performing Arts

SUNY-GER Learning Outcomes – Students will demonstrate:

- understanding of at least one principal form of artistic expression and the creative process inherent therein.

I. GOALS AND OBJECTIVES

- A. Courses in this area will cultivate both the cognitive and affective aspects of the human mind. Students will study significant works of the intellect and

imagination, and may actively participate in individual aesthetic and creative experiences.

6. Humanities

SUNY-GER Learning Outcomes – Students will demonstrate:

- knowledge of the conventions and methods of at least one of the humanities in addition to those encompassed by other knowledge areas required by the General Education program.

I. GOALS AND OBJECTIVES

A. Courses in this area will define the modes of inquiry specific to the disciplines of philosophy, literary study, history of the arts, and rhetoric. The courses may focus on primary texts and sources or significant examples of philosophical, literary, artistic, and rhetorical interpretation and analysis.

7. Mathematics

SUNY-GER Learning Outcomes – Students will demonstrate the ability to:

*- interpret and draw inferences from mathematical models such as formulas, graphs, tables and schematics;
- represent mathematical information symbolically, visually, numerically and verbally;
- use arithmetical, algebraic, geometric and statistical methods to solve problems;
- estimate and check mathematical results for reasonableness, determine alternatives and select optimal results; and
- recognize the limits of mathematical and statistical methods.*

If a student has passed the Regents Math B with a score of 85 or above, he/she may, at the discretion of the campus, be judged to have satisfied all the learning outcomes for this category.

I. GOALS AND OBJECTIVES

A. Courses in this area will develop the students' ability to read critically the technical and statistical information that pervades contemporary society. Students will develop a strong conceptual understanding and appreciation of the power of mathematics. The major goal is to make the student competent to use numerical and graphical data in personal and professional judgments and in thinking critically about public issues.

~~B. NOTE: Students must demonstrate basic proficiency in mathematics prior to registering for any math course numbered 102 or above. Proficiency may be demonstrated by any one of the following:~~

~~1. a score of 80 or higher on the NYS Sequential II Regents Exam or an equivalent grade in a second high school mathematics course at this level;~~

- ~~2. a transfer grade of C or higher in a course equivalent to MAT 104, or higher level at another institution,~~
- ~~3. pass a mathematics competency exam approved by the Mathematics Department, or~~
- ~~4. successful completion of MAX 100.~~

8. Natural Sciences

SUNY-GER Learning Outcomes – Students will demonstrate:

- understanding of the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis; and*
- application of scientific data, concepts, and models in one of the natural sciences.*

I. GOALS AND OBJECTIVES

- A. Courses in this area will focus on basic concepts, emphasizing the nature of the biological sciences, chemistry, the earth sciences, or physics. The desired result is a framework of skills and attitudes that permits one to understand the fundamental principles of natural science. Students will be able to make informed judgments on issues that affect the community, the nation, and the world; to think critically about what the media state about science and technology issues; and to make informed decisions that require gathering data, reading appropriate material, asking questions, and being able to distinguish scientific fact from opinion.

9. Social and Behavioral Sciences:

SUNY-GER Learning Outcomes – Students will demonstrate:

- understanding of the methods social scientists use to explore social phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical and interpretive analysis; and*
- knowledge of major concepts, models and issues of at least one discipline in the social sciences.*

I. GOALS AND OBJECTIVES

- A. Courses in this area will be designed to develop the capacity to engage in logical thinking and to read critically in the social and behavioral sciences. Students will develop a knowledge of the key concepts, perspectives, and analyses offered by social and behavioral scientists.

AMERICA & THE WESTERN HERITAGE

10. American History:

SUNY-GER Learning Outcomes – Students will demonstrate:

- *knowledge of a basic narrative of American history: political, economic, social, and cultural, including knowledge of unity and diversity in American society;*
- *knowledge of common institutions in American society and how they have affected different groups; and*
- *understanding of America's evolving relationship with the rest of the world.*

I. GOALS AND OBJECTIVES

- A. The purpose of courses in American History is to enable students to develop knowledge of a basic narrative of the history of the United States (political, economic, social, and cultural, including knowledge of unity and diversity in American society); knowledge of common institutions in American society and how they have affected different groups; and understanding of America's evolving relationship with the rest of the world. (Please note that an American History course taken to satisfy this requirement may not at the same time be used to satisfy the first Human Diversity requirement--see below.)
- B. The SUNY Provost's Advisory Council on General Education has added the following: "To satisfy this SUNY-GER category, students must take either (i) a basic introduction to American History; or (ii) a more specialized course in American History (*only if they scored 85 or above on the NYS American History and Government Regents Exam*)."
- C. Kinds of courses that are approvable for category (i):
 1. One half of the typical year-long survey of U.S. history.
 2. Introductions to American Government that document significant attention to historical context.
 3. American History courses with a somewhat narrower chronological focus that nevertheless provide enough historical context to cover a narrative equivalent to one semester of the U.S. History survey. Courses in 20th century U.S. history, e.g., have been approved when it has been documented that there is significant coverage of the 19th century context.
 4. Special theme courses that have as an explicit component the coverage of the basic narrative equivalent to one semester of the U.S. history survey. Examples of such courses are UGC 211 American Pluralism (Buffalo), and GEA 2000 American History, Society, and the Arts (Purchase). Both of these examples document the breadth of coverage of U.S. history by the use of a U.S. history textbook among the readings for the course.
- D. Kinds of courses that are approvable for category (ii):
 1. Virtually any American History course.
 2. Courses on American society and culture that adopt an ostensibly historical perspective and address in a significant way the 2nd and 3rd Task Force learning outcomes. These include, e.g., courses on the sociology of American institutions and/or minority groups. Courses that focus narrowly on literature, philosophy, the arts, vel sim., would not

normally be deemed to provide the breadth of coverage of U.S. history intended by the Board Resolution.”

11. Western Civilization

SUNY-GER Learning Outcomes – Students will:

- *demonstrate knowledge of the development of the distinctive features of the history, institutions, economy, society, culture, etc., of Western civilization; and*
- *relate the development of Western civilization to that of other regions of the world.*

I. GOALS AND OBJECTIVES

- A. The purpose of courses in Western Civilization (or the Western Heritage) is to enable students to develop knowledge of the distinctive features of the history, institutions, economy, society, culture, etc. of Western civilization; and to relate the development of Western civilization to that of other regions of the world.
- B. The SUNY Provost’s Advisory Council on General Education notes that “In addition to generic, eponymously titled, courses on the history of western civilization, courses that are more specialized--in either chronology or theme--may be approvable. Information submitted for such specialized courses would have to demonstrate (i) a focus on an aspect of western civilization that is reasonably construed as foundationally important; and (ii) relate that focus to the overall development of western civilization. Thus, courses on specialized topics or periods--examples include: classical mythology, the Renaissance, the Bible, French civilization, the history of theater--are approvable so long as the materials submitted demonstrate that the primary focus of the course is related to larger cultural developments of western civilization.”

HUMAN DIVERSITY

12. Tolerance & Intolerance in the United States

I. GOALS AND OBJECTIVES

- A. These courses directly address such issues as tolerance and intolerance, equality and discrimination, freedom and restraint, and justice and injustice; and they encourage student awareness and understanding of the many dimensions of diversity in American life. (Please note that no course in American history can be used to satisfy both the requirement in American History and the first Human Diversity requirement.)
- B. There are several things to note about Tolerance and Intolerance courses.
 - 1. First, they must have as their **primary focus** the issues mentioned above, not merely deal with them peripherally or in passing. So, for example, a course on the 20th-Century American Novel that touches on the theme of racism would not be acceptable as a Tolerance and Intolerance course. However, a course on Racism in the 20th-Century

American Novel would be acceptable, because it has “tolerance and intolerance, equality and discrimination, freedom and restraint, and justice and injustice” **as its topic**, using the American novel to illustrate these themes.

2. Second, Tolerance and Intolerance courses **focus on the United States**.
3. Third, these courses should treat “positive” as well as “negative” themes (e.g., not just the negative impact of ideas and practices associated with racism and discrimination, but also, in countering these, the positive effects of struggles for tolerance and equality).

13. Non-Western Civilizations

SUNY-GER Learning Outcomes – Students will demonstrate:

- *knowledge of either a broad outline of world history, or*
- *the distinctive features of the history, institutions, economy, society, culture, etc., of one non-Western civilization.*

I. GOALS AND OBJECTIVES

- A. In order to satisfy this requirement, students must demonstrate: knowledge of either a broad outline of world history, or the distinctive features of the history, institutions, economy, society, culture, etc., of at least one non-Western civilization.” (“Learning Outcomes” for SUNY General Education Requirement)
- B. The SUNY Provost’s Advisory Council on General Education has provided the following elaboration of these learning outcomes: “The intention of this category is to provide a counterpoint to the European focus of the Western Civilization requirement. Thus, approvable courses in this category must be either entirely or preponderantly non-European and non-US in focus. In addition to courses on the civilizations of Asia or Africa, this would, for example, allow courses on the histories of Latin America, the Caribbean, and/or indigenous peoples of the Americas.”

14.— 15. INTELLECTUAL ISSUES

Explorations in the Natural Sciences/Cultures & Civilizations/Self & Society

Instruction in these upper-division general education courses will build upon the intellectual growth and maturation of students who have completed their course work for the Basic Skills and Knowledge Foundations requirements. Every Intellectual Issues course will entail rigorous, multidisciplinary explorations of important themes, issues, or questions in one of the designated areas (Explorations in the Natural Sciences; Cultures & Civilizations; Self & Society). These courses should not just investigate the multidisciplinary and interpretive nature of intellectual inquiry. They should also engage students as active learners in the arguments, debates, and controversies that emerge when different perspectives are brought to bear on complex issues.

And they should challenge students to think critically and creatively and to communicate their ideas and findings effectively in writing.

Every Issues course should focus on a well-defined theme (topic, problem, issue--or set of interconnected issues) that is explored in depth from at least two different disciplinary perspectives. Survey courses that stress coverage of a predetermined body of material and reach predetermined ends or conclusions are not appropriate for this general education requirement. All Issues courses must instead entail open-ended, multidisciplinary exploration of complex questions; the integration of different perspectives (different questions posed; different modes of analysis; different conclusions) is intended to challenge students and instructors alike to discover the hard-won insights that come from attempts to “see the world whole.”

The goal is to have a broad array of Intellectual Issues offerings for every upper-division student to choose from. Prerequisites that restrict enrollment in an Issues course to a relatively small number of students will not be acceptable in most circumstances.

14. Explorations in the Natural Sciences

I. GOALS & OBJECTIVES

A. Instruction in these upper division general education courses will build upon the knowledge and skill foundations established in previously completed Knowledge Foundations courses. The goal is to provide students with an upper division, multidisciplinary experience in the Natural Sciences that will increase students' understanding of natural science principles, scientific research methods, applications of natural science research and technology, and interactions between science, technology and society. The above is consistent with the general charge of Intellectual Issues courses to investigate the multidisciplinary and interpretive nature of intellectual inquiry, building upon students' skills, abilities and knowledge foundations, and to bring multiple perspectives to bear on the theme-based issues that define the topics. These courses are further intended to produce additional writing experiences and depth of knowledge, by engaging students as active learners and by challenging them to think critically and creatively. Finally, these guidelines have been developed according to criteria appropriate to the Natural Sciences, in order to preserve the integrity of the Natural Sciences within the framework of a general education program.

II. COURSE REQUIREMENTS

A. Prerequisites

1. Completion of Basic Skills and Knowledge Foundations courses or permission of instructor.
2. Upper division standing.
3. Where deemed appropriate and necessary, a department may exclude the phrase “OR permission of the instructor”; or include specific Basic Skills or Knowledge Foundations courses, or specific areas (e.g., disciplines) of lower-division course work, as prerequisites.

B. Perspectives

1. The goal of the Intellectual Issues: Explorations in the Natural Science courses is to provide students with an upper division, multidisciplinary experience in the Natural Sciences that will increase students' understanding of natural science principles, scientific research methods, applications of natural science research and technology, and interactions between science, technology and society.
2. The upper division Intellectual Issues courses are meant to be general, multidisciplinary courses for non-majors. By multidisciplinary, we mean that an Intellectual Issues course must include ideas and perspectives, germane to the topic, from a variety of disciplines outside of the Natural Sciences. This means that the course will be theme-based, and that the structure and content of the course will be built around concepts relating science to the world we live in. For example, the course "Electromagnetic Theory," normally aimed at Physics majors, would be inappropriate. However, a course such as "Energy Production and Utilization in Modern Societies" would be quite appropriate, since the topic of energy may include ideas and perspectives from areas of political, social, economic, scientific, technological, ethical, aesthetic, etc., thought. As a second example, a course such as "Physical Chemistry," normally aimed at Chemistry majors, would be inappropriate. However, a course such as "Chemical Pollution of the Environment" would be quite appropriate, since such a course may include ideas and perspectives from the areas of political, social, economic, scientific, technological, ethical, aesthetic, etc., thought.
3. Many faculty from the Natural Sciences routinely utilize, in their present courses, materials from a wide variety of areas outside of their particular disciplines. Therefore, it is fully anticipated that faculty preparing an Intellectual Issues course will be able to expand the subject matter, with skills sufficient to challenge the student, to include ideas and perspectives from other disciplines without having to be an expert in these disciplines. There are many different possible ways of integrating various disciplines into the topics or theses of a specific course.
4. All approved courses will entail study of natural science from a multidisciplinary point of view, by including ideas and perspectives, germane to the topic, from a variety of disciplines outside of the Natural Sciences.
5. There must be a genuine integration of material from other disciplines, outside of the Natural Sciences, into the course, and it should be clear in the proposal how such integration is to be achieved.
6. Courses should be theme-based, which can be historical, topical or conceptual in nature. Courses should be designed to engage students

in debate and discussion concerning the various perspectives brought to bear on the topic. Mere surveys of material, or simple compilations of topics, are inappropriate.

C. Pedagogical Foci

1. Intellectual Issues courses are multidisciplinary in nature, and bring multiple perspectives to bear on these issues. Since there are a variety of different ways of integrating various disciplines from outside the Natural Sciences into the course, different pedagogical approaches can be taken. For example, courses can be team taught, or taught by a single instructor, with the proviso that in a team-taught course, one of the instructors must be a faculty member from the Natural Sciences.
2. One possible pedagogical approach is to teach the course from an historical point of view. By this we mean that issues and discussion topics are situated in their specific historical contexts and include the perspectives of diverse groups and cultures. This is a valid pedagogical approach, and has, for example, been already used in a number of natural science general education courses taught in the past.
3. It is most strongly recommended that class size for Intellectual Issues courses be limited so as not to exceed approximately 100 students. Aside from the limitations due to the writing requirement (see below), it is felt that these courses would lose their special intellectual and pedagogical character when taught to an overly large class of students. The integrity of these courses would be undermined without an appropriate limitation on class size.

D. Active Learning

1. Each course, where feasible, should include active student participation through such means as demonstrations, debate, presentations, group experimental/laboratory projects, and panel discussions.
2. Research projects and examinations, where feasible, should require students to apply basic skills and reflect their ability to synthesize newly-acquired multidisciplinary knowledge.
3. Courses should promote critical thinking. It should be emphasized that natural science courses, by their nature, routinely involve in-depth logical analyses of natural phenomena and their applications, using critical thinking skills embedded within a matrix of contextual scientific principles. By employing content-based critical thinking, the students' depth of understanding of the course topic is maximized.
4. There may be out-of-class assignments, where feasible, to broaden the range of topic analysis. Appropriate examples include: library investigation, external field-based research, computer-mediated communication, simulation exercises, review of the research tools that are used to identify reliable knowledge, etc.

E. Writing

1. There shall be a specified program of writing assignments that is appropriate to the upper division status and to the aims of Intellectual Issues courses. Proposed courses in the Natural Sciences must identify where the writing components are to occur.
2. Writing components may be addressed by such instruments as reports, term papers, and/or essay examinations. Because of the need to evaluate students' writing performance, class size for courses in the Natural Sciences should not exceed approximately 100 students.
3. Periodic assignments shall afford the students practice and feedback throughout the semester. Evaluation of written work should include assessment of writing proficiency.
4. Written assignments, where feasible, may encourage analysis of primary sources. However, it should be recognized that this is not always possible in the Natural Sciences. For example, most of the primary sources for the work of the great 17th century astronomer Johannes Kepler are still untranslated and are available only in the Latin, in documents presently located in Russia (Moscow)!
5. If individual Intellectual Issues courses are part of a department's Writing-Across-the-Curriculum plans, they must meet the department's guidelines for Advanced Writing.

III. CRITERIA SPECIFIC TO EXPLORATIONS IN THE NATURAL SCIENCES

- A. Courses will focus on topics that explore natural science principles, scientific research methods, applications of natural science research and technology, and interactions between science, technology, and society.
- B. Upon completion of the course, the student will have a better understanding of the application of natural science principles in everyday phenomena; the nature of the interactions between science, technology, and society; the different disciplinary perspectives that can be brought to bear on issues in the Natural Sciences; and scientific research principles.
- C. The number of suitable multidisciplinary topics for courses in the Natural Sciences is unlimited; several might include: Energy Production and Utilization in Modern Society; Chemical Pollution of the Environment; The Effect of Air Pollution on Society; Environmental and Populational Biology; etc.

IV. ASSESSMENT AND EVALUATION: RECOMMENDATIONS

- A. Peer evaluation of these courses by the Steering Committee for Intellectual Issues: Explorations in the Natural Sciences should be done on at least a 3-year cycle.
- B. Instructors teaching these courses will be requested to provide materials such as a syllabus, examinations, examples of student writing, and reference lists to the General Education Board. Evidence should be presented to verify the degree to which students have achieved the goals and objectives of the course.

15a. Cultures and Civilizations

15b. Self and Society

I. GOALS & OBJECTIVES

- A. Instruction in these upper division general education courses will build upon the knowledge and skill foundations established in previously completed Knowledge Foundations requirements. Intellectual Issues courses will provide rigorous, multi-disciplinary, and critical investigations of important themes and questions in the areas of Cultures & Civilizations and Self & Society. These courses should not only introduce multiple perspectives, but also actively engage students in the arguments, debates and controversies that emerge when multiple perspectives are brought to bear on important intellectual issues.
- B. *Cultures and Civilizations*: The goal is to understand and appreciate the expression of human ideas. Upon completion, the student should be able to recognize the significant achievements of the human intellect and imagination; the relationship between the expression of ideas and culture; and the historical context of ideas and human achievement. Courses will focus on topics that explore an expression of human ideas over time.
- C. *Self and Society*: The goal is to understand and appreciate the relationship of individuals to each other in social and cultural groups and the influence of social, political, and economic institutions on individuals and society. Upon completion, the student should be able to recognize roles of people and the physical environment in shaping culture and society; conflicts of interest and values involved in translating knowledge into social action; and mechanisms people employ to change and modify their own behavior, values, and attitudes, as well as those of other people. Courses will focus on topics dealing with the individual in relation to a larger group.

II. COURSE REQUIREMENTS

A. Prerequisites

- 1. Completion of all Basic Skills requirements and Knowledge Foundation courses OR permission of the instructor.
- 2. Upper division standing.
- 3. Where deemed appropriate and necessary, a department may exclude the phrase “OR permission of the instructor”; or include specific Basic Skills or Knowledge Foundations courses, or specific areas (e.g., disciplines) of lower-division course work, as prerequisites.

B. Perspectives

- 1. All approved courses will entail study of at least two distinct disciplines with contributions from other areas of knowledge. Courses must present material from at least two distinctly different points of view.
- 2. There should be a genuine integration of perspectives on themes from various disciplines and topics. It should be made clear in the proposal how such integration is achieved (e.g., Students will study Global

Energy Resources from the perspectives of both the geologist and the technologist).

3. Courses should focus on well-defined themes. These can be historical, conceptual, or topical in nature. Rather than surveys of material, courses should be designed to engage students in debate and discussion about different perspectives and approaches to the discipline(s).
4. The themes or sets of issues presented should be connected in a way that exhibits greater conceptual unity than a simple compilation of topics.
5. Where possible, issues and discussion topics should be situated in their specific historical contexts and include the perspectives of diverse groups and cultures. While courses may be historically oriented, other approaches are equally valid.

C. Pedagogical Focus

1. Intellectual Issues courses must be multi-disciplinary. A variety of pedagogical approaches may be taken. One approach enlists diverse teams of faculty. Another approach relies on interdisciplinary study in a course taught by an individual faculty member.
2. There are several models for team teaching. One model is the Committee Teaching Format where each individual faculty member teaches her/his own section of the course. The team jointly determines at least 50% of the course materials that reflect diverse disciplines and perspectives. Another model is the Group Teaching Format where the entire team teaches the course jointly, combining lectures shared among the group and recitation classes taught at least one credit hour per week by individual faculty members. All faculty teams are expected to meet regularly to discuss course materials and assess the effectiveness of required assignments.
3. Courses should involve some small group instruction.

D. Active Learning

1. Each course should include active student participation through such means as demonstrations, debate, presentations, and panel discussions.
2. Research projects and examinations should require students to apply basic skills and reflect their ability to synthesize newly acquired interdisciplinary knowledge.
3. Course assignments should incorporate application-oriented, out-of-class study. Several examples include, but are not limited to: library investigation, empirical research, role playing, field-based research, critical analysis, computer mediated communication, and simulation exercises.
4. All courses should encourage critical thinking and collaborative student inquiry (e.g., team problem solving).

E. Writing

1. There shall be a program of writing assignments that is appropriate to the upper division status and the aims of intellectual issues courses.
2. Evaluation of written work shall include assessment of writing proficiency.

3. Assignments shall afford the students practice and feedback throughout the semester. A substantial part of assignments shall require revision and re-submission.
4. Written assignments should encourage analysis of primary sources.

III. CRITERIA SPECIFIC TO CULTURES & CIVILIZATIONS COURSES

- A. Courses will focus on topics that explore an expression of human ideas over time.
- B. Upon completion, the student should be able to recognize the significant achievements of human intellect and imagination; the relationship between the expression of ideas and culture; and the historical context of ideas and human achievement.
- C. The number of interdisciplinary topics for courses is unlimited; several might include: contrasting values and social practices of various ethnic groups; culture as a society's adaptation to a particular geophysical environment; significant achievements of the human intellect and imagination; relationships between the literary and artistic expression of ideas and culture; civilization as a stage of cultural and technological evolution marked by complex social organization and the capacity to control of energy systems.

IV. CRITERIA SPECIFIC TO SELF & SOCIETY COURSES

- A. Courses will focus on topics dealing with the individual in relation to a larger group.
- B. The goal of these courses is to understand and appreciate the relationship of individuals to each other in social and cultural groups and the influence of social, political, and economic institutions on individuals and society. Upon completion the student should be able to recognize roles of people and the physical environment in shaping culture and society; conflicts of interest and values involved in translating knowledge into social action; and mechanisms people employ to change and modify their own behavior, values, and attitudes as well as those of other people.
- C. The number of interdisciplinary topics for courses is unlimited; several might include: roles of people and the physical environment in shaping culture and society; personality and ethics of the self as a product of the culture of the group; relationships between societal forces and some aspect of the self; roles of individuals to shape technology as an influential source of social change; conflicts of interests and values involved in translating knowledge into social action.

V. ASSESSMENT AND EVALUATION: RECOMMENDATIONS

- A. Peer evaluation of these courses by the Steering Committee for Intellectual Issues: Explorations in the Natural Sciences should be done on at least a 3-year cycle.
- B. Instructors teaching these courses will be requested to provide materials such as a syllabus, examinations, examples of student writing, and reference lists to the General Education Board. Evidence should be presented to verify the degree to which students have achieved the goals and objectives of the course.

