Report of OSU Baccalaureate Core Committee on Baccalaureate Core Learning Outcomes

Prepared by:
Jay S. Noller, Co-Chair, Faculty Senate 2006-2007 Baccalaureate Core Committee, Patricia Muir, Co-Chair, Faculty Senate 2006-2007 Baccalaureate Core Committee, and Members of the 2006-2007 Baccalaureate Core Committee, with input from Susie Leslie, OSU Academic Programs and Academic Assessment.

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BACKGROUND
In an effort to meet the standards established by Oregon State University’s accrediting body, the Northwest Commission on Colleges and Universities (NWCCU), the Baccalaureate Core Committee of the Faculty Senate was asked to craft learning outcomes from the criteria and rationale statements of the Baccalaureate Core. As an institution OSU is required to assess student learning at several levels—assessment at the course and program levels is moving forward, assessment of University-wide academic advising continues, and we need to push ahead to assessing the Baccalaureate Core. Learning outcomes are the foundation of assessment; they capture the most important factors of a program, the essence of what we hope students will take away. These student learning outcomes will guide the methods we use to gather data and later the discussions of the results. Assessment of the general education component of a degree at Oregon State will show us if we are achieving the outcomes and illuminate what improvements, if any, are needed. This assessment will help with alignment throughout the University experience from the beginning, through the discipline, and finally an OSU graduate. This request comes from the Office of Academic Programs and Academic Assessment and the University Assessment Council.1

APPROACH AND METHODS
Our approach to generating the learning outcomes envisioned a pyramiding scheme, whereby the “essences” of the criteria and rationale for each of the categories of the Bacc Core are aggregated up the hierarchy of the curriculum’s system and distilling to a short list of overall learning outcomes. This vision was based in part on our understanding and assumptions that there are redundancies or patent similarities among these “essences” of the Bacc Core categories. Learning Outcomes were synthesized from the existing Rationale and Criteria (see Appendix A) using the taxonomy of cognitive skills as classified by Bloom2. The resulting list was discussed and revised through several versions during the Winter and Spring 2007 terms by the Bacc Core committee. In a step-by-step manner, our method is presented as follows.

In practice, the learning outcomes were created by extracting the text for a single category in the Rational and Criteria (Fig. 1). Each statement (sentence, list item) was separated as a line, and then a verb appropriate to the level of Bloom’s Taxonomy was

1 This introductory paragraph was prepared by Susie Leslie, OSU Academic Programs and Academic Assessment.
placed at the beginning of each line based on its subject matter. This step required consideration of the appropriate level and action word / verb. At least one of the cognitive domains of the taxonomy is represented in the amended statements. The order of statements was then sorted to match the taxonomy’s six levels from Knowledge (lowest) to Evaluation (highest). The level is shown in parentheses at the end of each statement, e.g., (K) for knowledge (Fig. 2).

**CURRENT CRITERIA AND RATIONALE**

Science, Technology, and Society courses shall:

1. Be upper division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Emphasize the interactions of science and/or technology and society (in general, or through significant examples of that interaction);
4. Place the subject in historical context;
5. Demonstrate interrelationships or connections with other subject areas;
6. Provide a perspective on the scientific or technological approach to understanding and manipulating the world by relating that perspective to its social context;
7. Use a multidisciplinary approach and be suitable for students from diverse fields; and
8. Include written composition.

Given the immense impact that science and technology have had on all facets of modern civilization, a disciplined study of the interaction of science and technology with society is a necessary part of general education. Students should understand the political and economic dimensions of scientific or technological change, the nature of the scientific enterprise and its relationship to technology, and the complexity of major revolutions in science and technology. (Students are encouraged to complete their baccalaureate core perspective requirements before taking the Science, Technology, and Society course.)

Figure 1. Current criteria and rationale statement for the STS category.

**Science, Technology, and Society**

- Describe specific relations between science and/or technology and society, and place this in historical context. (K)
- Distinguish interrelationships or connections among/between different subjects’ view of the immense impact that science and technology have had on all facets of modern civilization. (C)
- Examine and illustrate a perspective on the scientific or technological approach to understanding and manipulating the world by relating that perspective to its social context. (Ap)
- Analyze a problem from a multidisciplinary approach and recognize the views on this problem from diverse fields. (An)
- Compose a body of written work that demonstrates understanding of the political and economic dimensions of scientific or technological change, the nature of the scientific enterprise and its relationship to technology, and the complexity of major revolutions in science and technology. (S)
- Assess the general interactions of science and/or technology and society. (E)
- Demonstrate critical thinking skills.

Figure 2. Derived learning outcomes for the STS category.
The structure of higher categories of the Bacc Core – Skills, Perspectives, DPD and Synthesis – was used as an intermediate level of aggregation. In this stage, statements were sorted according to their cognitive skill level. Statements of similar level, e.g., all (K) statements, were combined and simplified. At the end of this stage, there were at least seven learning outcomes for each of the higher categories. This process was repeated in the next stage for aggregation to a single list for the entire Bacc Core. This list, initially ca. 20 statements in length, was shortened to a dozen (or short list) on the basis of skill level. The final short list was discussed and reorganized over the course of three committee meetings to arrive at the Learning Outcomes of OSU Baccalaureate Core Curriculum (see below).

**Learning Outcomes of OSU Baccalaureate Core Curriculum**

Through successful completion of the approved Baccalaureate Core courses or approved alternative activities, students will:

1) demonstrate critical thinking;
2) demonstrate oral and written communication skills across disciplines and within their major disciplines; and
3) engage with and perform analysis and interpretation of:
   a) university-level mathematics;
   b) principles of health and fitness;
   c) significant literary, artistic and scientific works;
   d) variability and bias in ideas and data sets;
   e) significant global problems using a multi-disciplinary approach;
   f) origins and operations of social discrimination;
   g) the nature, value, and limitations of scientific methods;
   h) the societal dimensions of science and technology, and their evolving relationships in addressing shared problems; and
   i) the evolving roles and achievements of civilizations and cultures.

**ACKNOWLEDGEMENTS**

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Appendix A

Title: Rationale and Criteria of the Baccalaureate Core Curriculum at Oregon State University.

Source and Date: OSU Faculty Senate website of the Bacc Core Committee, November 2006
SKILLS
Writing I
Criteria and Rationale
Writing I courses shall:
1. Be lower division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Focus on the writing process, invention strategies, drafting and revision techniques, and the forms and conventions of writing;
4. Emphasize the ability to analyze content and reader response;
5. Require significant student practice coupled with evaluation;
6. Encourage appreciation and understanding of language, form and style; and
7. Develop increasingly sophisticated and efficient writing strategies.

Effective writing is essential both in education and professional pursuits. Furthermore, writing provides considerable pleasure throughout life as a means of exploring and clarifying ideas and communicating with others. Writing is challenging as well as rewarding. Effective writing in a variety of situations requires well-planned instruction and continued practice.

Writing II and Writing III/Speech
Criteria and Rationale
Writing II and Writing III/Speech courses shall:
1. Be at least 3 credits;
2. Emphasize elements of critical thinking;
3. Focus on relevant theory, concepts, and techniques for understanding the form of communication involved and for improving skills;
4. Provide concepts and guidelines for determining effective communication within a specific area or discipline, including conventions of that field;
5. Require significant student practice or performance coupled with evaluation; and
6. Encourage appreciation and understanding of language, form, and style.

The Writing II and Writing III/Speech area provides supervised practice in communication skills and extends the focus to professional communication concerns. To accommodate the needs of various undergraduate programs and diverse interests of students, a variety of writing and speech options should be offered.

Mathematics
Criteria and Rationale
The Bacc Core requirement in mathematics may be met by one of the following:
   a. A satisfactory score on an appropriate placement test; or
   b. Mathematics 105 or any higher-numbered mathematics course that meets the following criteria.
Mathematics courses shall:
1. Be at least 3 credits;
2. Develop problem solving strategies; and
3. Include at least one significant mathematical model.

Everyone needs to manipulate numbers, evaluate variability and bias in data (as in advertising claims), and interpret data presented both in numerical and graphical form. Mathematics provides the basis for understanding and analyzing problems of this kind. Mathematics requires careful organization and precise reasoning. It helps develop and strengthen critical thinking skills.

**Fitness**

**Criteria and Rationale**

Fitness courses shall:

1. Be lower division and consist of a lecture component of at least 2 credits and an activity-based component of at least 1 credit (these components are graded independently and can be taken in different terms)
2. Emphasize critical thinking in approaches to principles of health and fitness;
3. Provide information and experiences in the safe and effective means to initiate and maintain healthful behavior change and a physically active lifestyle
4. Have a fitness lecture component that will:
   a. Focus on an understanding of the scientific principles of physical fitness and positive health behaviors;
   b. Expose students to concepts related to physical fitness and health, such as stress management, nutrition, and risk avoidance behaviors;
   c. Provide practice in the development of personal fitness and health programming;
5. Have a fitness activity component that will:
   a. Provide techniques and opportunities to assess, evaluate, and practice physical fitness and associated health behaviors;
   b. Lead to the development of an appropriate fitness program based on assessments and in-class experiences in physical activity

Physical fitness and positive health behaviors are recognized as central to wellness. Students should understand the relationship between diseases and behavior. In order to achieve wellness, students need to assume personal responsibility for a physically active and healthy lifestyle.

**PERSPECTIVES**

**Science**

**Criteria and Rationale**

Science courses shall:

1. Emphasize elements of critical thinking;
2. Focus on the meaning of the fundamental concepts and theories that broadly characterize basic (rather than applied) physical or biological science;
3. Illustrate, demonstrate, and analyze natural phenomena and systems;
4. Provide historical perspectives and context on the evolution of major
theories and ideas;
5. Demonstrate interrelationships or connections with other subject areas; and
6. Examine the nature, value, and limitations of scientific methods and the
interaction of science with society.

Science seeks to develop a fundamental description and understanding of the
natural world, from elementary particles to the cosmos, including the realm of
living systems. Students should have opportunity to explore the insights of
science, to view science as a human achievement, and to participate in
scientific inquiry. This experience includes the challenge of drawing conclusions
based on observation, analysis, and synthesis. To ensure a broad perspective,
the science requirement consists of two parts: physical science (including earth
science) and biological science.

Western Culture
Criteria and Rationale
Western Culture courses shall:
1. Be lower division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Focus on a broad subject area and time period;
4. Study, from a historical perspective, the origins and evolution of important
features of Western culture;
5. Examine events, movements, ideas or artistic achievements of Western
culture in a broad context, including the significance they have for
contemporary U.S. culture and institutions; and
6. Demonstrate interrelationships or connections with other subject areas.

Knowledge, understanding, and appreciation of Western culture are essential to
a liberal education. Contemporary U.S. society in all its institutional, social, and
cultural complexity is largely a product of Western culture. Understanding of
Western culture and knowledge of its origin and evolution enable students to
develop greater awareness of its past, present, and future.

Cultural Diversity
Criteria and Rationale
Cultural Diversity courses shall:
1. Be at least 3 credits;
2. Emphasize elements of critical thinking;
3. Focus on a broad subject area and time period;
4. Study, from a historical perspective, the origins, evolution, and/or
contemporary state of civilizations and cultures that are either non-Western
in origin or have evolved within Western culture in opposition to or in forms
clearly distinct from the tradition;
5. Promote a culturally diverse perspective; and
6. Demonstrate interrelationships or connections with other subject areas.

Knowledge, understanding, and appreciation of diverse cultures are essential parts of a liberal education. Not only is the world a multicultural one, but most of its cultures contrast sharply with traditional Western culture. The U.S. is itself a multicultural society. Awareness of the contrasts and similarities between other cultures and traditional Western culture enables students to develop a greater understanding of both.

**Literature and the Arts**

**Criteria and Rationale**

Literature and the Arts courses shall:

1. Be lower division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Place the subject(s) in historical context;
4. Demonstrate interrelationships or connections with other subject areas;
5. Focus primarily on literature or the arts;
6. Actively engage students in significant works of literature or art;
7. Explore the conventions and techniques of the form(s) under consideration;
8. Address the role of literature or art in society; and
9. Encourage appreciation and understanding of the form(s) under consideration.

Literature and the other arts provide examples of ways individuals find pattern and meaning in their experience. Study of these art forms gives students expertise and sophistication not only in recognizing the methods by which pattern and meaning are found, but also in critiquing those methods. Through literature and the arts, students engage their own and other cultures, examine their values, and discover sources of lifelong pleasure.

**Social Processes and Institutions**

**Criteria and Rationale**

Social Processes and Institutions courses shall:

1. Be lower division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Place the subject(s) in historical context;
4. Demonstrate interrelationships or connections with other subject areas;
5. Focus on methods, concepts, and theories for understanding the structure and change of major social institutions, and for understanding individual behavior as part of a social dynamic;
6. Examine the nature, value, and limitations of the basic methods of the social sciences, and discuss the interaction of the social sciences and society; and
7. Provide a perspective on the evolution of the theories and ideas emphasized in the course.
Human beings are inevitably social, influencing and being influenced by social groups. The social sciences study social institutions and processes and deal with the human behaviors and values that form and change them, and are essential for an understanding of contemporary society.

DIFFERENCE, POWER AND DISCRIMINATION
Criteria and Rationale
Difference, Power and Discrimination courses shall:
1. Be at least 3 credits;
2. Emphasize elements of critical thinking;
3. Have as their central focus the study of the unequal distribution of power within the framework of particular disciplines and course content;
4. Focus primarily on the United States, although global contexts are encouraged;
5. Provide illustrations of ways in which structural, institutional, and ideological discrimination arise from socially defined meanings attributed to difference;
6. Provide historical and contemporary examples of difference, power, and discrimination across cultural, economic, social, and political institutions in the United States;
7. Provide illustrations of ways in which the interactions of social categories, such as race, ethnicity, social class, gender, religion, sexual orientation, disability, and age, are related to difference, power, and discrimination in the United States;
8. Provide a multidisciplinary perspective on issues of difference, power, and discrimination;
9. Incorporate interactive learning activities (e.g., ungraded, in-class writing exercise; classroom discussion; peer-review of written material; web-based discussion group); and
10. Be regularly numbered departmental offerings rather than x99 or blanket number courses.

The unequal distribution of social, economic, and political power in the United States and in other countries is sustained through a variety of individual beliefs and institutional practices. These beliefs and practices have tended to obscure the origins and operations of social discrimination such that this unequal power distribution is often viewed as the natural order. The DPD requirement engages students in the intellectual examination of the complexity of the structures, systems, and ideologies that sustain discrimination and the unequal distribution of power and resources in society. Such examination will enhance meaningful democratic participation in our diverse university community and our increasingly multicultural U.S. society.

SYNTHESIS
Contemporary Global Issues
Criteria and Rationale
Contemporary Global Issues courses shall:
1. Be upper division and at least 3 credits;
2. Emphasize elements of critical thinking;
3. Focus, from a historical perspective, on the origin and nature of critical issues and problems that have global significance;
4. Emphasize the interdependence of the global community;
5. Use a multidisciplinary approach and be suitable for students from diverse fields; and
6. Include written composition.

Our world has become increasingly interdependent. Social, economic, political, environmental, and other issues and problems originating in one part of the world often have far-reaching ramifications in other parts of the world. These issues and problems not only transcend geographical boundaries but also cross academic disciplines. Therefore, if students are to acquire understanding of and to discover effective responses to such issues and problems, they must acquire both global and multidisciplinary perspectives. (Students are encouraged to complete their baccalaureate core perspective requirements before taking the Contemporary Global Issues course.)

Science, Technology, and Society
Criteria and Rationale
Science, Technology, and Society courses shall:
9. Be upper division and at least 3 credits;
10. Emphasize elements of critical thinking;
11. Emphasize the interactions of science and/or technology and society (in general, or through significant examples of that interaction);
12. Place the subject in historical context;
13. Demonstrate interrelationships or connections with other subject areas;
14. Provide a perspective on the scientific or technological approach to understanding and manipulating the world by relating that perspective to its social context;
15. Use a multidisciplinary approach and be suitable for students from diverse fields; and
16. Include written composition.

Given the immense impact that science and technology have had on all facets of modern civilization, a disciplined study of the interaction of science and technology with society is a necessary part of general education. Students should understand the political and economic dimensions of scientific or technological change, the nature of the scientific enterprise and its relationship to technology, and the complexity of major revolutions in science and technology. (Students are encouraged to complete their baccalaureate core perspective requirements before taking the Science, Technology, and Society course.)