

**“GEARing up for success”: Toward a re-envisioning of the
HSU general education program**

November 18, 2013

Higher-Order Reasoning as Central Goal

GEAR responded to a desire broadly expressed by HSU faculty to graduate students with higher-level reasoning abilities. Higher-level reasoning includes more than the "critical thinking" of logic and argument emphasized as "critical thinking" by the CSU. The development of higher-level reasoning extends critical thinking ability, but also an individual's capacity for creative thinking, for reflective introspection of self as a thinker and learner and for recognizing, respecting and employing different ways of knowing and frameworks of reasoning.

Validity of this more comprehensive view of higher-level reasoning is largely documented in concurrent agreement between large longitudinal studies on adult intellectual development and in Stephen Brookfield's comprehensive deducing of five *traditions of critical thinking*, of which logic and argument is one. Higher-level reasoning offers a vision for how the most important aspects of all five traditions can be conveyed through the metadisciplines of the arts, humanities, mathematics, social science, and sciences if instruction in these areas employs the knowledge and skills of the disciplines to emphasize the metadisciplinary ways of knowing and reasoning.

Like writing, we cannot introduce reasoning exclusively in one or two courses and thereafter abandon requiring students to practice and develop it. Because this is the quality faculty most emphasize that they want to help HSU students to develop (as determined through workshops and discussions offered by the GEAR committee in AY 2012-2013), this is where we chose to focus particular effort in envisioning a curriculum of general education. This transfers the responsibility for supporting the development of students' capacity to reason to all of us who teach GE.

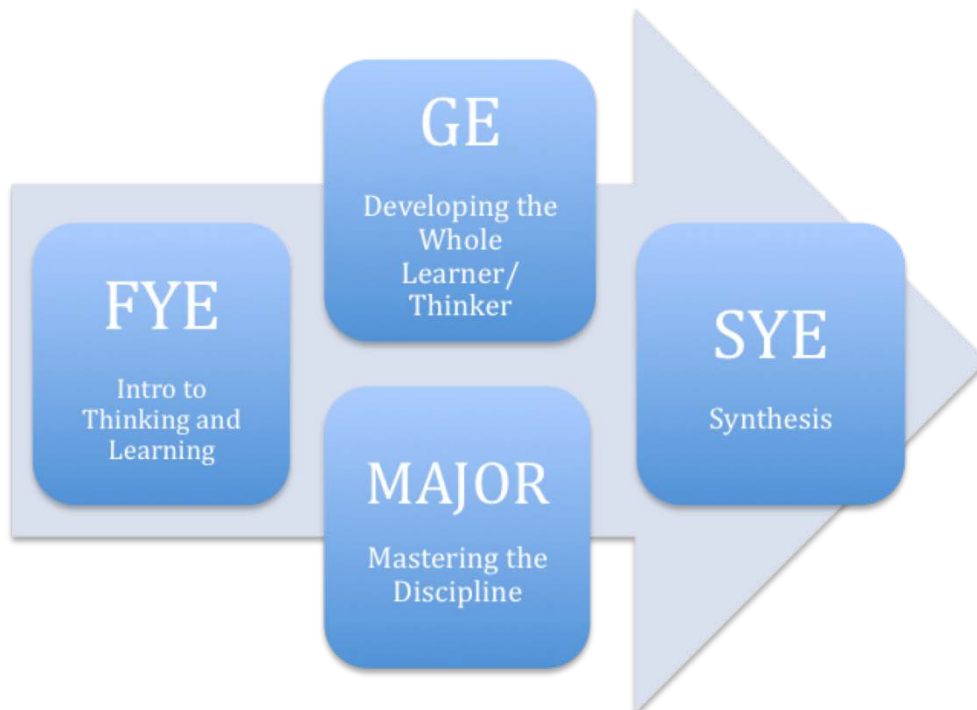
We recognize two levels of literacy as desirable and realistic to develop in a baccalaureate holder. (1) A citizen literacy should be produced in GE that provides individuals with a capacity for life-long learning through recognizing which frameworks of reasoning are most appropriate for engaging different life challenges and (2) An expert literacy should be produced in the major for that extends understanding and application of the framework of reasoning in one's own discipline. This includes not only understanding the framework, but also its limits and the need to employ others expert in different frameworks for solving truly complex or "wicked" problems through interdisciplinary cooperation. This should lead to a concentration of courses that contribute to a clear vision rather, than to a proliferation of courses that are unfocused, repetitive and redundant.

From Substance to Form

GEAR recognizes a distinction between *substance* and *form* in design of a new GE. Substance is universal and indispensable. Substance includes higher-level reasoning, and the additional Core Competencies of written communication, oral communication, quantitative reasoning, and information literacy. To achieve substance we need to assess it to know that our students are achieving it. GEAR's work has involved articulating citizen literacy for each metadiscipline in the form of outcomes essential to guide assessment of substance, and creating prototype assessment instruments to make this possible.

Form offers infinite possibilities of content and format for achieving substance. Form wisely chosen here should include HSU's special mission emphases of social and environmental responsibility, diversity and sustainability. Beyond this, varied forms consist of thematic approaches like that of the Chico State *Pathways* program, participation in unique GE colleges like University of San Diego, and department-specific models, such as that of Winthrop University, where each major program demonstrates how a combination of its curriculum and specific recommended GE courses will provide a well-rounded undergraduate experience and fulfill the institution's baccalaureate outcomes.

Based on the size and structure of HSU, we believe that the third model-that of individualized GE experiences based on a student's proposed major-is the most effective approach. Our proposal includes a Freshman Year Seminar in which all students become introduced to the elements of higher-order reasoning and a meta-disciplinary approach. Supported by thoughtful and early advising, each student would plan their GE curriculum to best support their achievement of the baccalaureate outcomes. Students also participate in a synthesis or *Capstone* experience during their senior year.



Consistent with the advice we received in June 2013 from AAC&U Institute faculty, we spent time examining what it means to be a graduate of HSU. This led us to develop our own set of six baccalaureate outcomes that incorporate the special emphases of the HSU mission and fulfill the core competencies outlined by WASC. In addition, we are committed to maintaining a GE program on campus that retains the Area division requirements outlined in CSU executive order #1065 in a way that is recognizable to faculty. In other words, we do not seek to dismantle current GE structure.

Rather, it is our plan to incorporate the overall goal of higher-order reasoning into the core of each class that will remain part of the GE program, and implement an assessment structure to track students' exposure and development of this central competency. Therefore, it is imperative that we include alongside each baccalaureate outcome an indication for how it will be assessed. Similarly, each GE course that fulfills a baccalaureate outcome will be required to include in the course proposal a plan for assessment of that outcome.

DRAFT HSU Baccalaureate Outcomes

Preamble:

HSU seeks to develop graduates with a passion for lifelong learning and growth. Curiosity, intellectual flexibility and tolerance, a sense of environmental, economic, and social responsibility will be the hallmarks of an HSU graduate. Our alumni will carry with them a respect and appreciation of the multiple forms of diversity: cultural, social, political, and intellectual. This respect will encourage informed action that extends beyond the classroom and beyond graduation.

1. Mastery of the fundamental skills necessary for lifelong intellectual endeavor, including critical and creative thinking, written and oral communication, quantitative reasoning and information literacy (introduced in FYE-Area E; and assessed in GE)
2. Conversance with the principal domains of reasoning associated with liberal learning: the sciences and mathematics, the social sciences, the humanities, technology and the arts (assessed in lower division GE)
3. Acquisition of in-depth knowledge, skills and reasoning of at least one major course of study (assessed in major)
4. Knowledge of human diversity in culture, viewpoint, and experience and understanding of the effect of power and privilege (assessed in GE, and majors where appropriate)
5. Ability to employ the process of making ethical choices in personal, professional, social and/or environmental situations (assessed in GE, and majors where appropriate).

6. Ability to integrate knowledge, skills and reasoning across different fields of study and modes of enquiry (assessed in the culminating experience in the major or upper division GE)

If we believe that the above outcomes are essential to our graduates, then this belief shapes our model for GE. In fact, if we chose to make these six learning outcomes our primary objective with all of our graduates, the only choice we are left with is that General Education at HSU in conjunction with the major programs must satisfy the baccalaureate outcomes for every single one of our graduates. As each major program is different, each major program must find a way for GE to support their major.

Additionally, each department must decide at what level they will engage with GE overall. How much of their instructor time will be dedicated to educating non-majors about their particular meta-discipline? Are they willing to spend the time and effort required to ensure that their courses are fulfill a specific Baccalaureate outcome? It is our hope that faculty ownership and support of the central premise-that we share the common goal of improved higher order reasoning skills for our students-will ultimately lead to agreement and acceptance that GE courses need to support this goal in order to remain effective.

DRAFT GE Outcomes

The examples below begin with language from Executive Order #1065, followed by the current HSU GE outcome and the proposed outcome that includes critical thinking and reasoning. Additional notes are included when appropriate.

Area A-English Language Communication and Critical Thinking

Minimum 9 semester units or 12 quarter units -one course in each subarea

A1 Oral Communication

(3 semester units or 4 quarter units)

A2 Written Communication

(3 semester units or 4 quarter units)

A3 Critical Thinking

(3 semester units or 4 quarter units)

Students taking courses in fulfillment of subareas A1 and A2 will develop knowledge and understanding of the form, content, context, and effectiveness of communication.

Students will develop proficiency in oral and written communication in English, examining communication from the rhetorical perspective and practicing reasoning and advocacy, organization, and accuracy. Students will practice the discovery, critical evaluation, and reporting of information, as well as reading, writing, and listening effectively. Coursework must include active participation and practice in both written communication and oral communication in English.

In critical thinking (subarea A3) courses, students will understand logic and its relation to language; elementary inductive and deductive processes, including an understanding of the formal and informal fallacies of language and thought; and the ability to distinguish

matters of fact from issues of judgment or opinion. In A3 courses, students will develop the abilities to analyze, criticize, and advocate ideas; to reason inductively and deductively; and to reach well-supported factual or judgmental conclusions.

Current outcomes

Upon completing this requirement students will:

1. identify the premises and conclusion of an argument and determine its validity and its soundness.
2. analyze, criticize and advocate ideas.
3. distinguish deductive from inductive argument forms, identify their fallacies, and reason inductively and deductively.
4. distinguish matters of fact from issues of judgment or opinion and reach well factual or judgmental conclusions from a wide diversity of real world examples

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Proposed outcomes

Upon completing this requirement students will be able to:

1. analyze an argument for soundness of premises and conclusion.
2. identify and explain logical fallacies in arguments
3. provide a reasoned criticism of an argument

Area B-Scientific Inquiry and Quantitative Reasoning

Minimum of 12 semester units or 18 quarter units

-one course each in subareas B1, B2, and B4, plus laboratory activity related to one of the completed science courses

B1 Physical Science

(3 semester units or 4 quarter units)

B2 Life Science

(3 semester units or 4 quarter units)

B3 Laboratory Activity

associated with a course taken to satisfy either B1
or B2

B4 Mathematics/Quantitative Reasoning

(3 semester units or 4 quarter units)

In subareas B1-B3, students develop knowledge of scientific theories, concepts, and data about both living and non-living systems. Students will achieve an understanding and appreciation of scientific principles and the scientific method, as well as the potential limits of scientific endeavors and the value systems and ethics associated with human inquiry. The nature and extent of laboratory experience is to be determined by each campus through its established curricular procedures.

Current outcomes

Upon completing this requirement students will:

1. apply scientific concepts and theories to develop scientific explanations of natural phenomena.
2. critically evaluate conclusions drawn from a particular set of observations or experiments.
3. demonstrate their understanding of the science field under study through proper use of the technical/scientific language, and the development, interpretation, and application of concepts.

Proposed single outcome

1. Students will be able to articulate **how** we understand the Physical Universe using the framework of science.

Notes: Rubric will assess students' ability to discern which topics lend themselves to scientific investigation and which do not; i.e. students are able to tell the difference between a scientific and non-scientific explanation, etc.

Life sciences LD outcome could be very similar to other sciences, just with a biological bent to rubric. Upper division will include more complex issues, but the learning outcomes remain the same.

Area B-Quantitative Reasoning

Courses in GE Area B Quantitative Reasoning shall develop skills and understanding beyond the level of intermediate algebra. Students will not just practice computational skills, but will be able to explain and apply basic mathematical concepts and be able to solve problems through quantitative reasoning.

Current Outcomes

Upon completing this requirement students will:

1. use skills beyond the level of intermediate algebra to solve problems through quantitative reasoning.
2. apply mathematical concepts and quantitative reasoning to problems.

Proposed outcomes

Lower division:

Students will use mathematical or statistical reasoning to **make and substantiate** conclusions based on data and/or other quantitative information.

Upper division:

Students will use mathematical or statistical reasoning to **critically evaluate** conclusions based on data and/or other quantitative evidence in applied contexts.

Note: “Mathematical or Statistical Reasoning” requires Quantitative Literacy, but is not equivalent to Quantitative Literacy.

Area C-Arts and Humanities

Minimum of 12 semester units or 18 quarter units

-at least one course completed in each of these two subareas:

C1 Arts: Arts, Cinema, Dance, Music, Theater

C2 Humanities: Literature, Philosophy, Languages Other than English

Across the disciplines in their Area C coursework, students will cultivate intellect, imagination, sensibility and sensitivity. Students will respond subjectively as well as objectively to aesthetic experiences and will develop an understanding of the integrity of both emotional and intellectual responses. Students will cultivate and refine their affective, cognitive, and physical faculties through studying great works of the human imagination. Activities may include participation in individual aesthetic, creative experiences; however Area C excludes courses that exclusively emphasize skills development.

In their intellectual and subjective considerations, students will develop a better understanding of the interrelationship between the self and the creative arts and of the humanities in a variety of cultures.

Students may take courses in languages other than English in partial fulfillment of this requirement if the courses do not focus solely on skills acquisition but also contain a substantial cultural component. This may include literature, among other content.

Coursework taken in fulfillment of this requirement must include a reasonable distribution among the subareas specified, as opposed to restricting the entire number of units required to a single subarea.

Current outcomes

Upon completing this requirement students will:

1. apply discipline principles to a specific instance, literary work or artistic creation. - specific vocabulary and
2. respond subjectively as well as objectively to aesthetic experiences and will differentiate between emotional and intellectual responses.
3. explain the nature and scope of the perspectives and contributions found in a particular discipline within the Arts and Humanities as related to the human experience, both individually (theirs) and collectively.

Arts-specific SLO:

4. demonstrate an understanding of the intellectual, imaginative, and cultural elements involved in the creative arts through their (or, “as a result of their”) participation in and study of drama, music, studio art and/or creative writing.

Humanities-specific SLO:

4. discuss the intellectual, historical, and cultural elements of written literature through their study of great works of the human imagination.

Proposed outcome for Arts

Students will analyze and articulate how they and/or other practitioners of the arts employed critical thinking and higher order reasoning within the artistic process.

Proposed outcome for Humanities

Students will analyze and articulate how the framework of reasoning of the Humanities is employed within a particular philosophical platform or literary work.

Area D-Social Sciences

Minimum of 12 semester units or 18 quarter units

A minimum of twelve semester units or eighteen quarter units dealing with human social, political, and economic institutions and behavior and their historical background. Students learn from courses in multiple Area D disciplines that human social, political and economic institutions and behavior are inextricably interwoven. Through fulfillment of the Area D requirement, students will develop an understanding of problems and issues from the respective disciplinary perspectives and will examine issues in their contemporary as well as historical settings and in a variety of cultural contexts. Students will explore the principles, methodologies, value systems and ethics employed in social scientific inquiry. Courses that emphasize skills development and professional preparation are excluded from Area D. Coursework taken in fulfillment of this requirement must include a reasonable distribution among the subareas specified, as opposed to restricting the entire number of units required to a single subarea.

Current outcomes

Upon completing this requirement students will:

1. apply the discipline-specific vocabulary, principles, methodologies, value systems and ethics employed in social science inquiry, to a specific instance.
2. explain and critically analyze human social, economic, and political issues from the respective disciplinary perspectives by examining them in contemporary as well as historical settings and in a variety of cultural contexts.

3. illustrate how human social, political and economic institutions and behavior are inextricably interwoven.

Proposed outcome

1. Develop and articulate appropriate criteria for evaluating evidence, conceptualizing problem-solving hypotheses and making judgments about competing hypotheses to examine their own beliefs about human social, economic, and political issues

Area E-Lifelong Learning and Self-Development

Minimum of 3 semester units or 4 quarter units

A minimum of three semester units or four quarter units in study designed to equip learners for lifelong understanding and development of themselves as integrated physiological, social, and psychological beings.

Student learning in this area shall include selective consideration of content such as human behavior, sexuality, nutrition, physical and mental health, stress management, financial literacy, social relationships and relationships with the environment, as well as implications of death and dying and avenues for lifelong learning. Physical activity may be included, provided that it is an integral part of the study elements described herein.

Current outcomes

Upon completing this requirement students will:

1. Students will explain and demonstrate an appreciation for the nature of being human as an integration of physiological, psychological, and socio-cultural influences.
2. Students will demonstrate preparation for the life-long and complex process of self understanding, self-analysis, and self-development as an individual among others.

Proposed outcome

1. Given an appropriately complex and important real-life case challenge, students will be able to explain how at least three meta-disciplinary ways of knowing are relevant to addressing the challenge, select one of these as the framework of competency through which she/he chooses to make a meaningful contribution, and create an effective plan for developing expertise in that framework.