

Critical thinking (7 courses total, 5 Foundations and 2 Applications)

An illustration of how the categories of area of the grid could be developed

Critical thinking is the starting point and context of the entire University Studies curriculum. Critical thinking is what differentiates the college from the high school educational experience. It is a nexus of skills and practices that creates the potential for students to continue lifelong education beyond attaining their university degree. It is taking an active and deliberate approach to problems as they arise. It is designed to foster a sense of curiosity, imagination and engagement reinforced by the capacities to find and process relevant information and to articulate personal beliefs and arguments in order to participate in more effective personal and public decision making and action. It includes becoming proficient in a variety of approaches to thinking along with an understanding of their strengths and weaknesses, their limits and abuses. Critical reasoning is the repeated and deliberate practice of thinking so that one has a variety of thinking strategies available, can respond more rationally in a crisis, as well as evaluate the thinking processes of oneself and others. Critical thinking is the ability to make judgments of value that can be explained, acted upon and assessed for effectiveness.

The Critical Thinking Dimension: Draft Outcomes

Critical thinking is a way of thinking that is active, purposeful, and organized. Critical thinking may vary among disciplines but typically involves reasoning based on inquiry, evidence, interpretations and implications. A critical thinker considers context as well as assumptions and biases, personal and other, in making judgments. Building upon the information literacy skills of inquiry and evaluation, a critical thinker: maintains a disposition that is open to change and to other perspectives; engages in purposeful, organized thinking; evaluates evidence; explores and investigates in a deliberate manner; exercises self-regulatory judgment and makes connections. (LLST)

Students will be able to

- A. Construct persuasive arguments in increasingly complex contexts
- B. Successfully integrate disparate concepts and information when interpreting, solving problems, evaluating, creating, and making decisions
- C. Examine and evaluate how their own personal, historical, and cultural perspectives affect the discovery and generation of knowledge
- D. Recognize, differentiate, and effectively employ appropriate and increasingly sophisticated strategies to collect and interpret information
- E. Apply theories from a variety of disciplines and advance convincing reasons to connect as well as differentiate theories from different domains of knowledge.
- F. Be able to use scientific principles in making and critiquing arguments.

- G. Be able to use methods of interpretation in making and critiquing arguments.
- H. Be able to use college-level quantitative concepts and methods in arguments.
- I. Be able to use social science principles in making and critiquing arguments.
- J. Select and use hardware, software applications, databases, and other technologies effectively for both inquiry and communication
- K. Read actively and analytically at the college level and synthesize and apply information and ideas from their reading across disciplines

¹Presented at Faculty Forum, February 2009

First Year Inquiry (FYI)

This seminar will be an introduction to the undergraduate academic experience. Faculty will select an issue or topic from their discipline for an inquiry that they feel serves this introductory function. Faculty will have the opportunity to teach the material they love at an appropriate level for beginning the college careers of new students. A portion of the course will specifically address issues of problems with and strategies for dealing with clarity of thought, expression and argument. Another portion will incorporate some of the adjustment to college material from the current First Year Seminar course, such as understanding the curriculum, effective study practices, time management, etc. Developing effective writing and speaking will also be a course emphasis. Connecting the First Year Inquiry with other courses within a semester through recommended related courses (links) or team-teaching (clusters) is encouraged.

Students will select their FYI seminar according to their interests. Some seminars could appeal to students in or considering a particular major. Some could include a service or civic engagement component. Some could help departments make contact with potential majors through topics of mutual interest. The First Year Experience office will maintain a website with descriptions of each section, permitting students to select their top 5 choices and be placed into one of these.

FYI Outcomes (To be developed)

Examples of courses that might be adapted or developed in this category:

Nagging Issues in Democracy (Wagner)

Power of Images (Wagner)

Sex, Gender and Inequality in American Literature and Film (TCNJ)

International Crime and Human Rights (TCNJ)

Transformative Power of Music (Gettysburg)

Food: Fuel for thought and Action (Gettysburg)

Nature, Science and Society (Ramapo)

Reflections of Yourself and Others (Ramapo)
Current Events: A Sociological analysis (Miami-Ohio)
Is Free Will an Illusion? (UNC)
Cultural Encounters: Arabs and the West (UNC)
From Camelot to Watergate (Bridgewater)
Chimpanzees: Our Forest Cousins (Bridgewater)
Capitalism, Poverty and Labor (Carnegie Mellon)
The Computer Science Within and Its Impact on Society (Duke)
Cyber Puzzlers (USC-Irvine)
Ecology of Business (Montana State University)

“Critical Approaches to Thinking” courses

There are four distinct academic approaches for identifying and evaluating problems and applying reason in working toward their solution, those practiced in Humanities, in Mathematics, in Science and in Social Science. These could approximately be described as focused upon but not limited to interpretation, quantification, scientific method and norm-based method respectively. Experiencing how practitioners in each area exercise their reasoning will be a major aspect of each course. Each course will give a broad overview of the variety of disciplines in its area and some discussion of the variety of thinking strategies and methods within this approach that these various disciplines and interdisciplinary efforts use. Strengths and weaknesses of each approach will be discussed along with current debates concerning this type of thinking – both in the profession and in current events. Each course may be taught from the perspective of one discipline or one thinker working in this area or may be a joint effort among the disciplines. It is not so much an introduction to the discipline for majors as it is to reasoning in the discipline (or several) and its general academic area.

The four courses can be taken in any order, with the possibility of more than one in a semester. Connecting courses within a semester through sharing the same students in parallel teaching (links) or team-teaching (clusters) is encouraged.

Critical Approaches to Thinking – Humanities

Students will be able to

1. Analyze the relationships of ideas and practices in literature, philosophy, historical and contemporary cultures.
2. Comprehend and interpret humanistic texts both primary and secondary
3. Communicate and understanding of the methods of inquiry within the humanities
4. Think critically about the cultures of the past and present

Examples of courses that might be adapted or developed in this category

Introduction to Literature (ENG 150)
Foundations of Western Civilization (HIST 101)
West and the Modern World (HIST102)
United States History since Reconstruction (HIST 206)
Introduction to Philosophy (PHIL 110)
Biblical and Classical Literature (University of Iowa)
Heroes and Villains (University of Iowa)
Philosophy of Science (Wayne State)
Introductory Logic (Wichita State)
Asian Civilizations (University of Utah)
Middle Eastern Civilizations (University of Utah)

Critical Approaches to Thinking – Mathematics

Mathematics and Quantitative Reasoning: Student Learning Outcomes

(Based on the Mathematical Association of America as adapted by Cleveland State University)²

Students will be able to

1. Interpret mathematical models such as formulae, graphs, tables, and schematics and draw inferences from them.
2. Represent and interpret mathematical information that is presented symbolically, visually, numerically, or verbally.
3. Use arithmetic, algebraic, geometric, statistical models and technology, or appropriate combinations of these to solve problems.
4. Estimate and check answers to mathematical problems in order to determine their reasonableness, identify alternatives, and select optimal results.
5. Recognize the limits of mathematical and statistical models and be able to explain those limitations in context.

Examples of courses that might be adapted for this category:

Contemporary Mathematics (Math 110)
Elementary Statistics (Math 130)
Quantitative Mathematics (Math 140)
College Algebra (Math 115)
Precalculus (Math 116)
Statistics (Math 230)
Intro to Statistics in Social & Behavioral Sciences (Seattle Pacific University)

Comments: Additional faculty discussion is needed on the desirability of follow-up experiences requiring the use of quantitative literacy skills. Many majors already require students to take additional courses to develop the quantitative or mathematical skills essential to the major but elements of quantitative literacy should be introduced throughout other areas of the University Studies Program.

² Quantitative Reasoning for College Graduates: A Complement to the standards
http://www.maa.org/past/ql/ql_toc.html

Critical Approaches to Thinking – Social Science

Based on Student Learning Outcomes, University of Maryland ³

Students will be able to

1. Demonstrate knowledge of findings and theories in the social and behavioral sciences;
2. Demonstrate understanding of investigative methods used in the social and behavioral sciences;
3. Demonstrate critical thinking about arguments in the social and behavioral sciences and evaluate an argument's major assertions, its background assumptions, the evidence used to support its assertions, and its explanatory utility;
4. Understand and articulate how culture, society, and diversity shape the role of the individual within society and human relations across cultures;
5. Demonstrate knowledge of how social science can be employed to: (a) analyze social change, (b) analyze social problems, and (c) analyze and develop social policies; and
6. Use appropriate technologies to conduct research on, and communicate about, social and behavioral sciences and to access, evaluate, and manage information to prepare and present their work effectively.

Examples of courses that might be adapted or developed in this category

Introduction to Anthropology (ANTH 130)

Myth and Folklore in the Modern World (ANTH 260)

General Psychology (PSY 110)

Social Problems (SOC 102)

Introduction to Women's Studies (WS210)

Introduction to African World Literature (AACS 150)

Introduction to Chinese Culture (ASN200)

Economics of the Contemporary World (ECON 101)

World Regional Geography (GEO 150)

Critical Approaches to Thinking- Science

Based on Student Learning Outcomes, University of Maryland ³

1. Use quantitative information and/or mathematical analysis to obtain sound results and recognize questionable assumptions;
2. Demonstrate understanding of the broad principles of science and the ways scientists in a particular discipline conduct research;
3. Make observations, understand the fundamental elements of experiment design, generate and analyze data using appropriate quantitative tools, use abstract reasoning to interpret the data and formulae, and test hypotheses with scientific rigor;
4. Understand how findings and ideas in science can be applied to explain phenomena and events and influence the larger society;
5. Understand the role that human diversity plays in the practice and history of science;
6. Communicate about science using appropriate oral and written means; and
7. Demonstrate proficiency in the collection, interpretation, and presentation of scientific data.

³Student Learning Outcomes for THE CORE LIBERAL ARTS AND SCIENCES STUDIES PROGRAM (University of Maryland <http://www.ugst.umd.edu/core/LearningOutcome.htm>)

Examples of courses that might be adapted or developed in this category

Human Biology (BIO 120)

General Anatomy (BIO 112)

Chemistry in Perspective (CHEM 120)

College Chemistry (CHEM 131, & 031)

Environmental Foundations (ENV 110)

General Geology (ENV 115)

Introduction to Physics (PHYS 110)

Research in Major or directed by Major

Many majors already have a discipline-specific research course working with the application of critical reasoning in their field. All majors will be encouraged to provide such a course or to direct students to a higher-level experience in critical thinking. Such courses could include rhetoric, statistics, logic, etc.

Capstone in major or Interdisciplinary option

Most majors now have a capstone course for all of their students, and all majors will be encouraged to provide such a culminating experience for their students. For students in majors without a capstone experience, there will be an option of an interdisciplinary culminating experience to bring together their undergraduate career through applying what they have learned to problems in the post-graduate world.

GE Council
Draft
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