Assessment Glossary for Harvey Mudd College

Assessment aims to improve institutional practices; it fosters discussion and adjustment of institutional goals and serves the enhancement of curriculum and pedagogy. In order to do so effectively, assessment ought to be sustainable and sustained; it should be direct rather than based solely on self-reporting; it should, when possible, be formative (students learn from doing it); and it ought to be integrated with, rather than added onto, pedagogy and practices.

<u>**Definitions:**</u>

Assessment – The on-going process of: 1) establishing clear, measurable expected outcomes of student learning; 2) ensuring that students have sufficient opportunities to achieve those outcomes; 3) systematically gathering, analyzing, and interpreting evidence to determine how well student learning matches expectations; 4) using the resulting information to understand and improve student learning (Suskie, 2004).

Examples:

Types of assessment methods often used in the classroom/curriculum at HMC: Case study reports; class presentations; quizzes and exams; essays; focus groups; multiple choice questions; poster presentations; practicum; capstone experience; senior thesis projects; summer research projects; reflective journals; short-answer questions; written reports.

Goal - A statement that describes and defines the knowledge, skills, attitudes, and habits of mind that students and graduates should be able to do as a result of participating in a particular learning.

Examples:

"Students will appreciate the breadth of Computer Science as a field of study and will understand the broad spectrum of the discipline's application and connections to other fields."

"To provide a curriculum that encourages and enables HMC students to makes connections between their work in mathematics, science, and engineering and the insights and concerns of humanists, social scientists, and arts."

Outcome –The measurable knowledge, skills, attitudes, or habits of mind that students attain or achieve as a result of participating in a learning experience. Typically referred to as *Student Learning Outcomes* at HMC. While some institutions use the terms "goal" and "outcome" interchangeably, at HMC we distinguish between them in the following sense: an outcome refers to a measurable indicator of progress toward a particular goal.

Examples:

"HMC students will demonstrate facility with oral and written communications, and astute and informed critical thinking across all disciplines."

"Students will demonstrate that they can execute an experiment to measure a chemical property using typical instrumentation."

Objective – The term "objective" is often used interchangeably with "goal" as another definition of a statement of content, level of knowledge, and/or skill that students are expected to possess. For the purposes of assessment at HMC, "goal" is the most commonly used term used to reference the knowledge, skills, attitudes, and habits of mind that students take with them from a learning experience.

Formative assessment – Assessments that are conducted while student learning is taking place, perhaps mid-way through a course or program

Examples:

In-class projects; peer review exercises; homework; lab assignments; collective exams (those that include pre-discussion of questions to be asked on exam); student-written exam questions.

Summative assessment – Assessments that are conducted at the end of a course or program

Examples:

Mid-term exams; final exams; homework; clinic projects; senior research projects;

Direct assessment – Methods that require students to demonstrate knowledge and skills and provide data that measure the achievement of expected learning outcomes; assessing student learning based on student work or performance

*Example*s:

Student performance on: Course exams; in-class projects; peer review exercises; homework; lab assignments; Clinic projects; senior research projects; collective exams (exams that include pre-discussion of questions); student-written exam question.

Indirect assessment – While direct assessment of a learning outcome reveals the particulars of what students know and can do, indirect measures suggest why performance was above or below expectations and what might be done to improve the processes of education (Banta, 2004, p. 5). Accurate and meaningful assessment requires the analysis of direct assessment, and using a combination of direct and indirect measures is advisable, as the methods provide complementary information. Indirect measures are commonly referenced and used at HMC, most typically in the form of satisfaction surveys, focus groups and interviews.

Examples:

Data from: National Survey of Student Engagement (NSSE); Faculty Survey of Student Engagement (FSSE), Beginning College Survey of Student Engagement (BCSSE); HERI Freshman Survey; HERI College Senior Survey; HERI Your First College Year (YFCY) Survey; HEDS Alumni Survey; course evaluations; focus groups; mid-term course evaluations.

Rubric - An assessment tool used to measure the effectiveness of a process, work product, or student work. It is a scoring guide that seeks to evaluate performance based on a full range of criteria rather than a single numerical score and which defines specific criteria upon which work will be evaluated.

Example:

	5 Outstanding	4 Very good	3 Good	2 Fair/average	1 Poor
Introduction	A brilliant exposition of the relevant question(s) and hypotheses, showing deep insight into the problem. Very clear and logical development of focal question(s) and approaches. Easily understandable by a general science reader.	An excellent summary of the focal research question(s)/ hypotheses. Hypotheses clearly described and logical, and approaches to their resolution adequately explained. A knowledgeable reader could understand the research.	A very good description of the research question(s)/ hypotheses. A knowledgeable reader could understand with some effort. The rationale was mostly clear and logically presented. A few instances where the author assumed knowledge on the part of the reader or used jargon.	A good summary of the research question(s)/ hypotheses. Occasional sections were inappropriate, illogical, or missing. The author used a lot of jargon without explanation.	A poor description of the research question(s)/ hypotheses. It would be difficult even for a knowledgeable reader to understand the focal question(s) or approaches.

(excerpt from Capstone rubric 2010 [draft])

Curriculum map – An illustration of the connection between courses and student learning outcomes. Curriculum maps can be used to determine how courses align with department's student learning outcomes. Standard formats of curriculum maps often include a list of departmental courses on one axis (Y), and departmental student learning on a second axis (X). Notations are made to illustrate where there is overlap or congruence between a course and a student learning outcome.

Example:

Goals	Student Learning Outcomes	CS5	CS60	CS70	CS81	CS105	CS121	CS131	CS140	Clinic
Goal 1: Students will demonstrate the skills of designing, implementing, documenting, and testing their own algorithms and programs in order to complete computational tasks.										
	Students will break broad computational problems into their component sub-problems and compose solutions for and from those components.	x	x	x			x	x	x	x
	Students will design algorithms that solve a wide variety of problems.	x	x	x					x	x

(excerpt from HMC Computer Science department curriculum matrix, 2010 [draft])