

Valencia Community College

Program Learning Outcomes Assessment Plan

The following plan was developed by Mathematics faculty during Destination 2009 for implementation during the 2009-2010 academic year.

- Program Area: ***General Education***
- Discipline (for plans within General Education): **Mathematics**
- Planning Team Members:
 - **John Niss**
 - **Al Groccia**
 - **Aryan Ashkani**
 - **Angie Trutie**
 - **Scott Krise**
 - **Agatha Shaw**
- Collegewide Implementation Team Member (Working in collaboration with the Learning Evidence Team) – **Angie Trutie and Agatha Shaw**
- Program Learning Outcome Selected for Assessment: **Quantitative and Scientific Reasoning - Use processes, procedures, data, or evidence to solve problems and make effective decisions.**
 - Performance Indicators:
 - **Read and comprehend data/information**
 - **Recognize and translate data/information**
 - **Analyze and solve**
 - **Interpret and draw a conclusion**
 - **See attached Rubric**
- Targeted Course(s): **MAC 1105**
 - Common Course Outline

- **The Common Course Outline for MAC 1105 has been completed and is due for revision.**
 - Common Course outlines are reviewed on a 2-year cycle.
 - Changes to course level outcomes as a result of program outcomes assessment must be reflected in the faculty approved common course outline
- Targeted Course Level Outcome:

Students will solve real world problems using college level quantitative reasoning skills

- Description of Proposed Common Assignment: **A common Final Exam Question (See Attached)**

➤ Implementation Timeline / Plan:

- **Discipline coordination / preparation in Fall 2009**
- **Determination of random sample by Institutional Research and Institutional Assessment Offices in January 2010**
- **Notification of impacted faculty in early February**
- **Collection of responses to common questions by randomly sampled students – end of Spring term 2010**
- **Scoring of responses to common questions by randomly sampled students and faculty discussion – May 6, 2010**

➤ Sampling Procedure

- **See attached sampling procedure**

➤ Attachments:

- **General Education Student Learning Outcomes**
- **Informed Consent statement to be included in all Syllabi**
- **Sample sampling process**
- **Assessment Process Description**
- **MAC 1105 College Algebra - Assessment Question**
- **Rubric for General Education Competency**

General Education Student Learning Outcomes

The general education program at Valencia is an integral part of the A.A. Degree program and is designed to contribute to the student's educational growth by providing a basic liberal arts education. A student who completes the general education program should have achieved the following outcomes:

Cultural and Historical Understanding: Demonstrate understanding of the diverse traditions of the world, and an individual's place in it.

Quantitative and Scientific Reasoning: Use processes, procedures, data, or evidence to solve problems and make effective decisions.

Communication Skills: Engage in effective interpersonal, oral, and written communication.

Ethical Responsibility: Demonstrate awareness of personal responsibility in one's civic, social, and academic life.

Information Literacy: Locate, evaluate, and effectively use information from diverse sources.

Critical Thinking: Effectively analyze, evaluate, synthesize, and apply information and ideas from diverse sources and disciplines.

Participant Informed Consent Form

(Informed consent forms to be included in all General Education syllabi starting Spring 2010)

Research is being conducted to assess General Education Program student learning outcomes. Student work will be collected at random from students enrolled in General Education courses each academic term. Your instructor may be asked to submit an article of work that you have completed during the course of the semester. Your identification will be removed from the work so as to preserve your anonymity and confidentiality. The work will then be scored holistically using a rubric. Those results will be used to improve instruction not to assess you as an individual student. You will not be asked to do anything outside of your normal class assignments and this assessment is completely separate from and will have no effect upon your class average or final course grade. There are no identifiable risks to you. The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely and only researchers will have access to the records. All information is subject to the Family Educational Rights and Privacy Act (FERPA) of 1974, which is designed to protect the privacy of educational records.

Your participation in this study is totally voluntary and you may withdraw at any time without negative consequences. To withdraw at any time during the study, simply ask your instructor not to submit any of your work.

Please feel free to contact Roberta Brown (407-582-3421) or Kurt Ewen (407-582-3413) if you have any questions about the study. Or, for other questions, contact the Chair of Valencia's Institutional Review Board at irb@valenciacc.edu.

I am at least 18 years of age and not requesting exclusion from the study constitutes my informed consent.

You will be given a copy of this information to keep for your records.

Methodology for Simple Random Sampling of Students

Using a computer program written in SAS, a statistical software package, a simple random sample of students can be chosen from the population of students currently enrolled in a particular course or courses. The sample of students, although chosen at random, can be selected to intentionally mimic the college enrollment in terms of particular variables. The sample size is determined based upon the total number of students in the target population and the assessment tool that is being used (rubric, etc.). Specifics may vary and the results will look different based upon the assessment but will follow the ENC 1101 model. An example is provided below (Fall 2007):

There were 4,529 students enrolled in ENC 1101, ENC 1101H, and IDH 1110 and a sample size of 115 students was used. This sample size was determined using a margin of error of $\pm .20$ (5% of the scale – a 4 point rubric) and a confidence level of 95%. The sample size for a population size of 4,529 should be 98. However, from 200310 to 200630, the college-wide withdrawal rate for all courses (W only, not including WP or WF) ranged anywhere from 10.33% to 15.44%. So in preparation for a potential loss of selected students (due to withdrawal), the population was oversampled (115 as opposed to the suggested 98). The sample of students intentionally mimics the college enrollment in terms of the following: campus of enrollment, day/evening (time of day course is offered), Full-time/Part-time (employment status of instructor), Online/Traditional (delivery method). The percentages for the population and the sample are listed below.

<u>#of Students:</u>	<u>Original</u>	<u>Sample</u>
	4529	115
<u>Campus breakdown:</u>		
East	34 .38%	33.04%
Osceola	24.09%	22.61%
West	35.15%	35.65%
Winter Park	6.38%	8.70%
<u>Timing breakdown:</u>		
Day	77.22%	74.76%
Evening	22.78%	25.24%
<u>Delivery breakdown:</u>		
Hybrid	1.10%	1.74%
Onsite	93.42%	90.43%
Online	5.48%	7.83%
<u>FT/PT breakdown:</u>		
Full-Time	55.73%	56.52%
Part-Time	42.02%	40.00%
Not assigned	2.25%	3.48%

MAC 1105 College Algebra - Assessment Question

(Calculator allowed)

After successfully earning a college degree, you are finally moving from a part time job to a full-time position in the video game industry with a greater salary and benefits. Your participation in a job fair has been productive, and you have two job offers.

Company A offers a starting salary of \$55,000 and predicts an increase of \$2,000 each year. Company B offers a starting salary of \$50,000 and predicts an increase of 5% each year. To help consider these offers, answer the following:

- A) Compare the annual salaries at the two companies after 5 years, 10 years, and 20 years.

Years	Company A

Years	Company B

- B) For each company identify the type of function used for the salary calculation.

Company A is a(n) _____ function

Company B is a(n) _____ function

Write a function representing the salary at each company after t years.

Work Area

Function A: _____

Function B: _____

- C) You have decided that the annual salary at year 15 is the only thing that will factor into your decision. Use the functions to identify which job offer you should accept.

Work Area

Circle only one: Accept Company A Accept Company B

- D) Justify your decision in a complete sentence within the context of the problem:

Rubric for General Education Competency

Quantitative and Scientific Reasoning: Use processes, procedures, data, or evidence to solve problems and make effective decisions

	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary	Score
Understanding: Student can read and comprehend data / information	Less than two salaries are correct	At least 2 salaries are correct	At least 5 salaries are correct	All salaries are correct	
Create a Model: Student can recognize relevant data and translate data/information	No function correct, at most one function identified	One function correct or both identified	Both functions are correct OR both identified one correct, correct format for other	Both functions are correct and are identified correctly	
Solve: Analyze, apply appropriate strategies and solve	Neither salary calculated	One salary calculated correctly OR both consistent with incorrect models	Both salaries calculated correctly	Both salaries calculated correctly using the functions	
Interpret: Interpret and draw well supported conclusions	Incorrect conclusion with no support	Correct conclusion without support OR Incorrect conclusion that is well supported	Correct conclusion but weakly supported	Correct conclusion well supported within the context of the problem	

Rubric for General Education Competency

Quantitative and Scientific Reasoning: Use processes, procedures, data, or evidence to solve problems and make effective decisions

	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Exemplary
Understanding: Student can read and comprehend data / information	Demonstrates LITTLE / NO comprehension of the real life problem	Demonstrates PARTIAL comprehension of the real life problem	Demonstrated MOSTLY COMPLETE comprehension of the real life problem	Demonstrates FULL comprehension of the real life problem
Create a Model: Student can recognize relevant data and translate data/information	NONE/LITTLE of the models created	Model(s) PARTLY created	Model(s) MOSTLY created	Model(s) COMPLETELY created
Solve: Analyze, apply appropriate strategies and solve	NONE / LITTLE of the problem solved	Problem PARTLY solved	Problem MOSTLY solved	Problem solved COMPLETELY
Interpret: Interpret and draw well supported conclusions	Incorrect conclusion with no support	Correct conclusion without support OR Incorrect conclusion that is well supported	Correct conclusion but weakly supported	Correct conclusion well supported within the context of the problem

This rubric was developed in Destination 2009 as a general guide to the skills needed for a student to demonstrate college-level proficiency in the ‘quantitative reasoning’ outcome of the General Education program. Scores at or above 3 indicate that the student is at college level.

The intention is to develop a set of exam question, one of which will be included in each faculty member’s final exam. An anonymous random sample of the responses will be scored according to a specific rubric for the question developed in parallel with the general rubric above.