

General Education SLOA Summary

General Education Category Physical and Life Science Semester: Fall 2012

Data Summary: (See chart attached)

- In Fall 2012, there were 18 general education science courses offered (Biology = 9; Biotechnology = 1; Chemistry = 3; Physical Science 3; Physics 2). A set of assessment questions has been developed for 16 of these courses (and for 1 course that will be offered in SP 2013).
- A total of **750** students in these 18 gen ed courses were assessed to determine if they demonstrated achievement of the general education outcome for this area:

The ability to access, process, analyze and synthesize scientific information

- Two courses (BIO 106 and PHS 109) had assessments developed but they were not administered due to instructor oversight.
- Most instructors completed an item analysis on the data generated by their course gen ed assessments
- Item analyses were used to plan follow-up actions for SP 2013 when the course(s) are offered again. Examples of action plans include
 - Incorporate more scientific reasoning in course content
 - Adopt or develop new laboratory exercises which require more use of graphical data, mathematical analysis of data, and synthesis of information
 - Emphasize more hands-on problem solving during lecture time so students get more practice with teacher accessible.
 - Meet with adjuncts teaching course sections to insure they are including case studies, reasoning, problem solving, etc.
- Assessment questions will be matched more closely with stated course learning outcome or components of the outcome
- CAAP testing in SP 2013 will be used to benchmark in-house assessment data for 5 courses, including 2 on-line courses: BIO 106, BIO 110 (web) PHS 104, PHS 109 (web), PHY 112.

Discussion of Analysis Results: (narrative in Word format of **who, what, where, when, what** was discussed and what was determined)

Who: Full-time faculty developed assessments for all courses which a FT faculty member is teaching (at least one section) ; Adjunct faculty developed assessments in FA 2013 for four courses taught exclusively by adjuncts. Assessments for two more courses in the latter category will be developed in SP 2013 and administered in SP or SU 2013.

What: 88.9% (16/18) of the FA 2012 Gen Ed courses in the Science area administered assessments to more than 750 students during the final exam period in Fall 2012. The assessments measured how well students achieved the Gen Ed Learning Outcome: ***The ability to access, process, analyze and synthesize scientific information.*** None of the assessments were benchmarked with CAAP. The BIO 104 assessment was benchmarked to the HAPS exam.

Where: The assessments were administered in the classroom as supplements to final exams or in the Testing Center if the final exam was given in the Testing Center, including the on-line course BIO 110.

When: Most of the assessing in Fall was done during the final exam period. Analysis of the data was done during SP2013 (March) for the preparation of this report. Benchmarking with CAAP has been arranged for SP 2013.

Plan of Action: (closing the loop)

- The same assessments will be used in most courses for SP 2013. If changes are made, some of the questions will remain unchanged to keep a basis for comparison
- Most changes will be made to course content or course design as described on the summary chart;
- Courses that did not do an item analysis for FA 2012 data will do one for SP 2013 and develop an action plan to implement in FA 2013
- Full-time faculty will initiate meetings with adjunct faculty teaching sections of the same gen ed course as the FT instructor(s).
- SLOA will continue to be a focus of intense discussion at Division meetings and supplementary meetings as necessary.
- More benchmark assessments will be identified and used in as many courses as possible

General Education		Science	Fall 2012 Report	
Approved Gen Ed Course	Credits	Assessment tool on file	Fall 2012 Data	Plan of Action
BIO 101: Gen Biology I	4	5 Questions BIO	74.4% N=104	Item analysis needed
BIO 102 Gen Biology II	4	Capstone Stream Study w/rubric	N/A	Grade with rubric SP 2013 and report data
BIO 103: A&P I	4	5 questions BIO	N=103 Mean score = 73%	Item analysis needed
BIO 104: A&P II	4	HAPS	N=93 54.11 ± 12.11	Item analysis needed
BIO 106: Unity/Diversity of Life	4	5 Questions BIO	Assessment not administered	Administer SP 2013 all sections
BIO 110: Human Biology CAAP SP 2013	3	5 Questions BIO	N=89 65%	Meet with adjuncts; incorporate more scientific reasoning in course content
BIO 111: Contemporary Issues (on-line course)	3	Need to develop	none	Course assigned to FT instructor for updating and SLOA issues
BIO 112: Biology of Disease (on-line course)	3	Need to develop	N/A	Offered for first time SP 2013
BIO 113: Principles of Biology I	4	5 Questions BIO	N= 13 100%	Match questions to specific outcomes
BIO 114: Principles of Biology II	4	Capstone Stream Study w/rubric	N/A	Grade with rubric SP 2013 and report data
BIO 205: Microbiology	4	5 Questions Micro	N=65 Mean score = 89.7%	Students applied reasoning and critical thinking to antibiotic scenario. New lab manual in FA 2013
BTC 101: Intro to Biotechnology	3	5 Questions BTC	N=18 Mean score = 61%	Students had most difficulty with processing and analyzing scientific information.
CHM 101: Intro College Chemistry	4	8 Questions CHM	N=79 Mean score = 62.5% Questions requiring thinking or math analysis are problematic.	Emphasize more hands-on problem solving in lecture and lab, less memorization
CHM 103: General Chemistry I	4	8 Questions CHM	N= 48 Mean Score = 74.3%	Weak area is synthesizing information /scientific reasoning; Will add 1

CHM 104: General Chemistry II	4	8 Questions CHM	N=18 Mean Score = 70.9%	or 2 inquiry based labs to course content
PHS 104: General Physical Science	4	5 Questions PHS 104	N=39 Mean score = 63%	More emphasis on 1. analyzing a graph and extrapolating data 2. Experimental design Incorporate this into new lab manual
PHS 105: Descriptive Astronomy	3	8 Questions PHS 105	N/A	Will be available Spring 2013
PHS 107/108 Intro Physical Geology	3/4	8 Questions PHS 107	N=33 Mean score = 82.1%	Weak areas = interpolation of graph to access data; math analysis of data. Will include more graphs and calculations in lecture and labs
PHS 109 Meteorology	4	7 questions PHS 109	Assessment developed, not administered	Administer assessment/item analysis
PHS 111 Earth/Space Science	4	Not offered FA 12	N/A	Develop and administer for SP 2013
PHY 112: Applied Physics	3	Not offered FA 12	N/A	Develop and administer for SP 2013: CAAP testing SP 13
PHY 201: General Physics I	4	4 questions w/several parts; not multiple choice; rubric needed	N=25 Mean Score = 80% Median Score = 85%	Item analysis needed
PHY 202: General Physics II	4	Not offered FA 12	N/A	SP2013
PHY 203: Principles of Physics I	5	4 questions w/several parts; not multiple choice; rubric needed	N=23 Mean Score = 80% Median = 85%	Item analysis needed
PHY 204: Principles of Physics II	5	Not offered FA 12	N/A	SP 2013