

General Education SLOA Summary

General Education Category Physical and Life Science

Semester: Spring 2013

Data Summary: (See chart attached)

- In **Spring 2013**, there were **21** general education science courses offered (Biology = **9**; Biotechnology = **1**; Chemistry = **3**; Physical Science **5**; Physics **3**). A set of assessment questions has been developed for **19** of these courses and these assessments were administered with final exams for the Spring 2013 semester to most of the sections of students completing these courses.
- A total of **1123** active students were registered for these 21 gen ed classes.
- A total of **910** students completed these classes (**81.0%**). The remaining 213 students withdrew.
- Of these completers, **797** students completed a general education assessment and were included in data reported by their instructor which is **87.6%** of the completers
 - We did not get assessment data for a total of **114** students (**12.5%**) who completed a gen ed course. This can be attributed to the instructors for the courses.
 - **25** students were in classes that submitted data and were not included in the data. These students would be considered “Walkaway Fx” (**2.7%**).
 - **89** students were in classes that did not submit any data at all (instructor’s fault).
- Instructors have since submitted gen ed assessments that will be used in the future. The assessments are now stored with all the other Science gen ed assessments.
- All of the assessments were designed to measure the following learning outcome for the Physical and Life Science general education area:

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

- Courses which still do not have assessments in place include: BIO 111 and PHS 111 These courses have recently been reassigned to different instructors and assessments will be completed in fall 2013.
- Courses which had assessments in place but did not submit data were BIO 106 (one section) and PHS 105 (two sections). Reminders have been sent to the instructors and the data will be added as an addendum to this report before the FA 2013 semester starts.
- Data was submitted by instructors on their updated COGS for SP 2013. This requires that the COGS be checked in order to complete this report. This is a time-consuming process and having a specific folder just for data might be considered.
- This division is working with R. Kendrick to develop a course-specific database to capture all of the data required for this Gen Ed Summary each semester.
- Specific issues with the relationship between gen ed assessment and COGS included:
 - Gen Ed assessments were not separated from overall course assessments so faculty was instructed to clarify the course common assessment vs. the Gen Ed assessment
 - Some COGS have too many learning outcomes and they are redundant
 - Item analysis did not always relate the question to the learning outcome. One course did do that for the BIO questions so this will be used as an example of how to align outcomes with assessments
 - The database project that faculty are working on with R. Kendrick will help bring the data presentation and analysis into a more consistent form.

- Because in most cases, assessment questions have **not** been aligned with the stated learning outcome for this content area, this will be on the agenda for the August Workshop when full-time and adjunct faculty are present.
- CAAP testing in SP 2013 was attempted with potentially 100 science students in BIO 106, BIO 110 (web), CHM 101 (evening sections) and PHS 109 (web). Originally we planned to do the CAAP testing also with PHY 112 but the testing was administered too late to get the results back and include them in the course grade. The instructor did not want to test his students under that condition. The PHY 112 class testing was cancelled and replaced with CHM 101 students.
- Although tests were ordered for **100** students, on **21** students (6 male/15 female) actually showed up at the Testing Center to take the exam. Distribution of these students by class was as follows:
 - BIO 110 = 7 students
 - BIO 106 = 7 students
 - CHM 101 = 7 students
 - PHS 109 = 0 students
- The mean score for these 21 students was 58.0 vs. 59.2 for the national mean. Thus, the HCC sample was close to but below the national mean in scientific reasoning for this small sample of students tested.
- The logistics of administering the CAAP test have been worked out
 - tests will be ordered earlier for Fall 2013 and
 - students will be notified on their Course Guidelines if their class has been selected for CAAP testing. We will continue to focus on the web classes to determine if the students are learning a comparable amount of scientific reasoning vs. in-class delivery method.

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

Who: In addition to the assessments that were developed by FT faculty for Fall 2012, four more courses assessments have been developed by FT instructors. We still have five courses without assessments. Adjunct faculty has developed 3 of the assessments.

What: 90.5%) of the SP 2013 Gen Ed courses in the Science area administered assessments to more than 797 students during the final exam period in Spring 2013. The assessments measured how well students achieved the Gen Ed Learning Outcome ***The ability to access, process, analyze and synthesize scientific information.*** CAAP testing was available to evaluate scientific reasoning in 4 courses but only 21% of the students targeted for this testing actually showed up to take the test. The BIO 104 assessment was benchmarked by the HAPS exam. THE CHM 103 and 104 courses were benchmarked with the ACS exam for General Chemistry I and II.

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. CAAP testing was done in the Testing Center in order to meet the stringent requirements of the ACT. This limited the available timeslots when the test could be administered and was a big factor in the poor completion by students in the selected classes.

When: Most of the assessing in Spring 2013 was done during the final exam period. Analysis of the data was done during at the end of the semester (May/June 2013) for the preparation of this report.

Plan of Action: (closing the loop)

- The same assessments will be used in most courses for FA 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 COGS for each course.
- Data that was not submitted in time for this report will be submitted before the Fall Workshop and added to the report as an addendum
- Division Chair will use this SP 2013 Gen Ed project to develop a meaningful agenda for the Fall Adjunct dinner so all faculty know the expectations.
- More benchmark assessments will be identified and used in as many courses as possible

General Education		Science	Spring 2013 Report	
Approved Gen Ed Course	Credits	Assessment tool on file	Spring 2013 Data	COG
BIO 101: Gen Biology I	4	5 Questions BIO	N=68 Mean score = 70.9	Date of COG? Need item analysis
BIO 102 Gen Biology II	4	8 questions	N=20 Mean score = 72.5%	Need a 2013 COG
BIO 103: A&P I	4	5 questions BIO	N=96 Mean score = 69.4%	May 21, 2013 Data summary includes Gen Ed Item analysis
BIO 104: A&P II	4	5 questions NEW; HAPS N=84; mean score = 58.94 ±14.54	N= 84 Mean score = 75%	May 22, 2013 COG includes Gen Ed data analysis
BIO 106: Unity/Diversity of Life	4	5 Questions BIO	N=38 Mean score= 63.7%	Data does not include evening section (adjunct; n= 13) CAAP Testing attempted Need a 2013 COG
BIO 110: Human Biology	3	5 Questions BIO	N=104 Mean score = 59%	May 24, 2013 CAAP SP 2013 for the on-line section
BIO 111: Contemporary Issues (on-line course)	3	Need to develop	N=17 No assessment administered	Need a 2013 COG Need a gen ed assessment
BIO 112: Biology of Disease (on-line course)	3	Need to develop	Course not offered SP 2013	Need a 2013 COG Need a Gen Ed Assessment
BIO 113: Principles of Biology I	4	5 Questions BIO	Course not offered SP 2013	Date of COG? COG needs Gen Ed data added
BIO 114: Principles of Biology II	4	8 questions	N=10 Mean score = 81.2	Need a 2013 COG
BIO 205: Microbiology	4	5 Questions Micro	N=61 Mean score = 82%	May 2013 Item Analysis on COG
BTC 101: Intro to Biotechnology	3	5 Questions BTC	N=16 Mean score = 73.75%	May 14, 2013 Clarify gen ed Item analysis on COG
CHM 101: Intro College Chemistry	4	8 Questions CHM	N=86 Mean score = 65.0%	May 2013 Need gen ed data analysis on COG CAAP Testing attempted

CHM 103: General Chemistry I ACS Exam = 33.1 vs. 37.1 national mean	4	10 Questions CHM	N= 35 Mean score = 74%	May 2013 COG includes Gen Ed scores but no item analysis
CHM 104: General Chemistry II ACS exam = 42.6 vs. 36.2 national mean	4	10 Questions CHM	N=27 Mean score = 87.4%	
PHS 104: General Physical Science	4	5 Questions PHS 104	N=36 Mean Score = 66.2%	Need a 2013 COG With Gen Ed data analysis
PHS 105: Descriptive Astronomy	3	8 Questions PHS 105	N=39 No data submitted	Need a 2013 COG With Gen Ed data analysis
PHS 107/108 Intro Physical Geology	3/4	10 Questions PHS 107	N=31 Mean score = 85%	May 2013 COG data incomplete (one instructor missing)
PHS 109 Meteorology	4	7 questions PHS 109	N= 39 Median score = 81.3%	Need a 2013 COG CAAP testing attempted
PHS 111 Earth/Space Science	4	No assessment available	N=33 No data available	Need a 2013 COG New adjunct to take over this course
PHY 112: Applied Physics	3	Two problems on electrical circuits graded with rubric	N=15 Mean score = 83 Median score = 85	Need a 2013 COG CAAP testing scheduled but cancelled
PHY 201: General Physics I	4	No offered in Spring	Not offered	Fall data available
PHY 202: General Physics II	4	Two problems (circuits and optics) graded with rubric	N=12 Mean score = 76 Median score = 78	Need a 2013 COG
PHY 203: Principles of Physics I	5	Not offered in Spring	Not offered	Need a 2013 COG Fall data available
PHY 204: Principles of Physics II	5	Two problems (circuits and light) graded with rubric	N=19 Mean score =77 Median score = 80	Need a 2013 COG