Program Learning Outcome Assessment Plan Template

General Information

Academic Year of Implementation: *2010 – 2011*

Academic Program / Discipline Area (for General Education) or Co-Curricular Program Area:

Science General Education

Planning Team:

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[1] Planning Team Leaders assume the responsibility for coordinating activities associated with the expectations for the design, approval and implementation of Assessment Plans. See the attached documents entitled ***Program Outcome Assessment Plan Approval and Improvement Process*** and ***Program Outcome Assessment Plan Approval and Improvement Process – Student Affairs***

[2] Planning Team membership, whenever possible, should reflect the ***Principles for selection of members for assessment plan work teams:*** Collegewide representation where possible; Full-time faculty from the respective program / discipline (tenured, tenure track, and Non-Tenure Earning 4 / 8 / 10 month faculty); Adjunct faculty when an adequate number of full-time faculty do not teach in the program / discipline; Faculty from both disciplines or programs when an outcome is assessed in two programs or a program other than the primary discipline.

Learning Outcomes and Performance Indicators

<table>
<tr><td colspan="2">Academic Program / Discipline Area (for General Education) or Co-Curricular Program Area: Science</td></tr>
<tr><td rowspan="2">Targeted Program Learning Outcome: Quanitative and Scientific Reasoning</td><td>Targeted Course(s), Co-Curricular Program or Student Activity associated with the with the Academic Program: All science gen ed courses</td></tr>
<tr><td>Targeted Outcome(s) within the Course(s), Co-Curricular Program or Student Activity indentified above: Students will assess scientific reasoning in current (~2 years) science news stories.</td></tr>
<tr><td>Performance Indicators for the Program Learning Outcome(s) selected:
Results from answers to multiple choice questions about the scientific reasoning in current science news stories delivered during the final exam or during finals period.</td><td>Performance Indicators for Outcome(s) within the Course(s), Co-Curricular Program or Student Activity selected: Results from answers to multiple choice questions about the scientific reasoning in current science news stories used in class throughout the semester as a formative assessment.</td></tr>
<tr><td colspan="2">Assessment Method (What assessment method - written assignment, speech, test, etc. - will you use to assess student ability related to the program / course outcomes selected): multiple choice test</td></tr>
<tr><td colspan="2">Description of the Proposed Common Assessment Method (Common assessments should be designed to ensure a balance between (1) the need for a consistency within the program in order to ensure comparable student artifacts and (2) the need for reasonable flexibility in order to protect faculty freedom to design the delivery of course content):
Throughout the semester, faculty would have available a variety of news stories with accompanying questions provided through a dedicated faculty webpage.
• These story/question sets would cover a range of skill levels and would allow for sequential assessment of scientific reasoning, from identifying the problem presented in the story to more sophisticated tasks, such as extrapolating the results from the story to a new situation.
• Faculty would be able to use these story/question sets as formative assessments and as a means for building student skill sets in scientific reasoning.
• Alternatively, faculty would be able to design their own activities/assignments for assessing current news stories. However, the website will be available for those who wish to use it.
• Faculty who develop new story/question sets will be able to submit them for review by other faculty and have them added to the website repository of story/question sets available for others to use.
At the end of the semester, Students would be given a copy of a current science news story and presented with a scantron sheet.
• The sheet would have 3 multiple choice questions aimed at different levels (low, medium, and high) of Bloom’s Taxonomy of cognitive skills.
• Questions would focus on different aspects of scientific reasoning used in the news story.
• The results will tell instructors not only whether or not the students have met the outcome, but also at what level they achieved within the</td></tr>
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Bloom's Taxonomy hierarchy.

- The scantron sheets will be scored electronically providing a statistical printout of results.
- Students will be identified so that their assessment scores can be tied to their class grades. This will provide a more robust statistical data set for evaluating assessment question reliability and validity.
- Individual faculty would receive results and be able to make modifications in future instruction plans.

Proposed Assessment Instrument (In some cases the assessment method may not need an associated assessment instrument – e.g., multiple choice tests): multiple choice questions about a current science news story

Implementation Process

Approval Process

Activities Associated with the Approval of Assessment Plans	Date	Person Responsible
Draft assessment plan is circulated for input to reviewers appropriate to the program / discipline	Start of fall term at academic assembly, all-campus discipline meeting	Mary Beck
College-wide live or e-mail / Blackboard discussion will be coordinated to consider input received	Input received until 9/30/2010	Mary Beck
Draft assessment plan is revised to reflect input	Science Gen Ed Outcomes Task Force will meet 10/15/2010	Mary Beck
Current voter eligibility list for curriculum will be used to vote on draft assessment plan	Call for votes by 10/29/2010	Mary Beck

Faculty Development Needs Associated with the Proposed Common Assessment

Question writing workshops and/or web-based tutorial, including posted guidelines

Collection of Student Artifacts

What information needs to be communicated to students concerning the assessment process (informed consent)?	Probably not a problem.
How will student artifacts or data associated with student performance be collected?	Scantron sheets sent out, collected, and scored by task force members.
If student artifacts are to be collected based on a random sample of students registered for the course or participating in the program / activity, what characteristics should the sample include (all samples will include campus, contract status of the instructor, mode of delivery)?	Not applicable.
How will information about faculty / staff participation in the assessment project be communicated?	Email, discipline and departmental meetings, webpage.
Who will be responsible for coordinating the collection of student artifacts?	Task force members
At what point in the academic year / semester will the student artifacts be collected?	Final exam period.

Program Level Assessment / Evaluation of Student Artifacts and Analysis of Results

When will student artifacts be assessed / evaluated?	Assessment Day 2011 is scheduled for May 5, 2011
Which faculty or staff from the program/discipline will evaluate student artifacts?	Scantron scoring will be responsibility of task force members.
What training / preparation / information will faculty or staff need in order adequately assess / evaluate the student artifacts collected?	Automatically scored so not applicable.
When will the results / data associated with this assessment be analyzed?	Between end of term and Assessment Day

What training / preparation / information will faculty or staff need in order to analyze the results / data associated with this assessment plan?	Statistical evaluation in concert with the Valencia Office of Student Assessment and results presented to science faculty on Assessment Day
What additional sources of data might allow faculty / staff to better understand and act on the results of this assessment plan?	Webpage information to include: 1. repository of news story question sets 2. web-based tutorial on creating question sets 3. discussion board/social network for a. presenting questions for review b. discussion of strategies for use of question sets for formative assessment c. problems encountered in using question sets d. support for adjuncts and anyone needing help in any part of this strategy Point person(s) for face-to-face support and advising
In order to ensure curricular and programmatic alignment, who else should be included in this conversation (e.g., faculty from related discipline areas in General Education)?	• College-wide webpage(s) for supporting faculty in outcomes assessments, housed with Office of Student Assessment (?) • Discipline deans • IT people for webpage development and maintenance • IT people for help with online assessment for online classes • Assessment people to help with statistical analysis
How will the assessment results be disseminated to stakeholders? (*Faculty, Staff, Advisory Boards, etc.*)	Assessment Day for results. Learning Day for continuing education, updates, and revisions.

Improvement Plan

Use of Assessment Results

What do the results of this assessment plan suggest about changes / improvements needed within the curriculum (targeted course(s), co-	• Need to have all science common course outlines include this outcome in their outcomes. • Need website to provide user-friendly questions sets that can be used by adjuncts and other faculty not involved in creating questions for formative assessment during the term

curricular program or student activity)?	• Need web-based tutorial for faculty interested in creating question sets.
What changes to the common course outlines, if any, need to be considered?	Need to have all science common course outlines include this outcome.
What do the results of this assessment plan suggest about changes / improvements to the program assessment process?	• This process allows the science program to determine levels of achievement of science students in scientific reasoning. • The results can inform the science program as to how successfully they are meeting this outcome and to develop and implement strategies to remediate when needed. • The statistical evaluation of questions will help us identify questions that are not valid and/or reliable and that will need to be discarded or revised.