

# Annual Report for Assessment of Outcomes 2011-2012

Please address the questions below  
send to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu) by **June 22, 2012**; with Annual Report in the subject line

*Note: Information provided in this report may be inserted into or summarized in Section 2C (LDC/DE) or 6B (CTE) of the Program Review Outline.*

1. Describe changes that have been implemented towards improving students' attainment of outcomes that resulted from outcome assessments carried out in 2010-2011. These may include but are not limited to changes to content, materials, instruction, pedagogy etc.

**For each outcome assessed this year:**

2. Describe the assessment design (tool and processes) used. Include relevant information about:
  - The nature of the assessment (e.g., written work, project, portfolio, exam, survey, performance etc.) and if it is direct (assesses evidence mastery of outcomes) or indirect (student's perception of mastery). Please give rationale for indirect assessments (direct assessments are preferable).
  - The student sample assessed (including sample size relative to the targeted student population for the assessment activity) process and rationale for selection of the student sample. Why was this group of students and/or courses chosen?
  - Any rubrics, checklists, surveys or other tools that were used to evaluate the student work. (Please include with your report). Where appropriate, identify benchmarks.
  - How you analyzed results, including steps taken to ensure that results are reliable (consistent from one evaluator to another).
3. Provide information about the results (i.e., what did you learn about how well students are meeting the outcomes)?
  - If scored (e.g., if a rubric or other scaled tool is used), please report the data, and relate to any appropriate benchmarks.
  - Results should be broken down in a way that is meaningful and useful for making improvements to teaching/learning. Please show those specific results.
4. Identify any changes that should, as a result of this assessment, be implemented to help improve students' attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).
5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

We have mapped our degree outcomes to each of the six PCC core outcomes, and have identified in which of the Aviation Science classes those core outcomes could best be assessed. (see table below). By mapping all of our AVS classes to the core outcomes and degree outcomes, we can better identify areas that are not given as much attention (such as cultural competence), and make changes to curriculum, if necessary.

During the 2011-'12 academic year, we chose to assess how the core outcomes of *Communication*, *Community & Environmental Responsibility*, *Cultural Awareness*, and *Self-Reflection* were being addressed in the Aviation Science program. We also continued to gather work samples that will be used in the 2012-'13 academic year for future evaluation.

#### CTE Assessment Plan (submitted November 2010)

#### AAS: Aviation Science – (Airplane/Helicopter)

1. Outcome Perkins recipient – TSA) (*	2. Maps to a Core Outcome?	3. Assessment Setting/Method	4. When will assessment take place ?
Earn FAA certificates and ratings appropriate to the pilot career they seek. <i>For Airplane degree:</i> 1. Commercial Pilot certificate with airplane single- and multi-engine and instrument airplane ratings. 2. Flight Instructor certificate with airplane single- and multi-engine and instrument airplane ratings (If Flight Instructor specialization is chosen). <i>For Helicopter degree:</i> 1. Commercial Pilot Certificate with Rotorcraft Helicopter and optional Instrument Helicopter rating. 2. Flight Instructor Rating with Rotorcraft Helicopter rating.	Professional Competence	All students are required to take an FAA Airman Knowledge Test and Airman Practical test to receive certification as a pilot. The FAA sets areas of assessment and standards for passing each exam.  Students will provide their passing rate for each knowledge and practical test upon completion of a flight class that results in an FAA license, rating or certificate.	2010-'11
Gain additional knowledge and skills related to the aviation industry and acting as a professional pilot that are above and beyond the FAA certification requirements and will allow them to be safer, more effective pilots and be competitive in the pilot job market.	<b>Communication</b>	Assessed in AVS-127, AVS-227 by evaluating presentation of final projects.	<b>2011-'12</b>
	<b>Community &amp; Environmental Responsibility</b>	Assessed in AVS-127, AVS-267 by examining final projects.	<b>2011-'12</b>
	Critical Thinking & Problem Solving	Assessed in AVS-237, AVS-267 by examining final projects.	2010-'11
	<b>Cultural Awareness</b>	Assessed in AVS-127, AVS-267 by examining final projects.	<b>2011-'12</b>
	Professional Competence	Assessed in AVS-137, AVS-157, AVS-167 by examining raw scores from midterm & final exams.	2010-'11
	<b>Self-Reflection</b>	Assessed in AVS-127, AVS-227 by examining final projects.	<b>2011-'12</b>
Explore areas in math, writing, general education and approved elective course work that will allow them to function more effectively as an aviation employee and/or continue their education towards advanced degrees.	All PCC core outcomes	Not sure yet where or how to assess core outcomes in classes from other departments.	

#### Changes resulting from 2010-'11 assessments

- Increased student networking and “cohorts”
- Online test preparation software

In our 2010-'11 assessment report, the Aviation Science department identified flight tests that students were more likely to fail during the first attempt. Ongoing data-gathering throughout the 2011-'12 academic year confirms that flight tests done at the beginning of a student's overall flight training (in the private pilot license), and those that serve as a “final exam” for every license or rating (e.g. the final flight test for the private pilot license, the final flight test for the commercial pilot license, etc.) are the ones in which students most often fail during their first attempt. Students are allowed to re-take these until they pass. The vast majority of students take no more than one re-take to successfully complete a flight test. Our assessment report recommended targeting students who are approaching these tests, and encouraging further practice.

Over the past academic year, the department has streamlined and simplified student reporting of flight progress, making it easier to track when they are approaching a flight test. Students are required to attend weekly flight labs, during which they prepare for upcoming flights and update a department chair with their flight progress. Enabled by better reporting, flight lab instructors encourage students at similar points in their training to group up and study together, particularly for upcoming flight tests. Flight lab instructors are also able to direct students to peers who have recently taken the same flight test, and encourage them to seek information on how they can prepare.

In addition to fostering connections between students, the department has also begun piloting an online test preparation web site to give students further opportunities to prepare for Federal Aviation Administration knowledge tests. The department plans to monitor the online test preparation web site, and solicit student feedback on its effectiveness, over the 2012-'13 academic year.



### ***Data selection***

We used student work from three Aviation Science classes for assessment: *AVS-127: Intro to Aviation*, *AVS-227: Aviation Careers*, and *AVS-267: Economics of Flight Operations*. Students typically take *AVS-127: Intro to Aviation* toward the beginning of the degree program, and this class includes both students who eventually enroll in the Aviation Science program and members of the general public. Students typically take *AVS-227* and *AVS-267* toward the end of the degree program. By looking at these classes, we can get a good cross-section of the approximately 150-180 students in our program. Three sections of *AVS-127* were selected, covering three different instructors, two different campuses, and 67 students. Two sections of *AVS-227* were selected, covering 53 students (this class is currently only offered online and is taught by the same instructor). One section of *AVS-267* was selected, covering 42 students (this class is currently only offered online and is taught by the same instructor).



### ***Communication: Assessment method***

To evaluate *Communication*, we chose to look at presentations of final projects in *AVS-127: Intro to Aviation* and *AVS-227: Aviation Careers*.

In *AVS-127*, students are required to create a term project that engages them with the community for 10-15 hours. This can take the form of organizing an event, such as an aviation barbecue, or performing volunteer work for a non-profit organization. After completing their hours, students write up a summary of

their experience, reflect on how it went versus how they thought it would go, and reflect on how well they thought the experience helped them better meet PCC's core outcomes. On the last day of class, students give a brief oral presentation of the results of their term project. The project is assessed both by ensuring that students completed the required number of hours, and using the rubric below as a guide. Several instructors use the same rubric. Credit for the presentation is earned simply by doing one, rather than on the quality of the presentation.

Criteria	Level 1	Level 2	Level 3	Level 4
On Time	0 points More than 7 days late.	10 points More than 24 Hours late.	15 points Late, but within 24 hours of Due date.	20 points On time or early.
Correct Format	0 points Unreadable, incorrect file type, hand written...	4 points Readable, but too short or too long, difficult to read or other otherwise not appropriate.	8 points In correct format but could have used some editing.	10 points In correct format as specified in Response Paper Tips.
Clear Thesis	0 points Simple regurgitation of the material.	4 points Difficult to tell what you got out of the assignment, but effort is there.	8 points A point is presented, but thoughts could be better organized.	10 points Point clearly made with thoughts organized well.
Related to You	0 points No indication that you've thought about how this is related to you.	4 points You've mentioned yourself, but there seems to be little thought put into how it relates to you.	8 points An effort has been made to personalize this, but the relationship is unclear.	10 points You've made it clear how this assignment relates to you and your future.
<b>Overall Score</b>	<b>Level 1 0 or more</b>	<b>Level 2 22 or more</b>	<b>Level 3 29 or more</b>	<b>Level 4 50 or more</b>

In AVS-227, students are required to create a final project in which they create career goals for the next five to 10 years and then research their desired jobs and companies. Students are graded primarily on the completeness of their final project (as in, did they submit all the required items?). On the last day of class, students give a brief oral presentation of the results of their final project. Credit for the presentation is earned simply by doing one, rather than on the quality of the presentation.

### ***Communication: Assessment results***

Generally, both written and oral communication was better in AVS-227 than in AVS-127, something to be expected given that students have typically had more practice in both areas by the time they take AVS-227. Students in both classes are encouraged to seek help from PCC's writing centers in their written communication. Overall, students in both classes show relatively good written communication skills, evidenced by clear thesis statements, organized paragraphs, and clear conclusions.

A significant number of students in all sections of these classes appeared to be uncomfortable making a presentation in front of the class, and although credit was earned for doing the presentation, the quality of the oral portion needed significant improvement in some cases. The most common errors include students staring at the whiteboard and reading directly off of it, rushing or fumbling, not using notes, and not appearing to have practiced beforehand. Some students take a Speech class over the course of their degree, but this is clearly an area that needs to be addressed.

### ***Communication: Changes recommended***

Although students' written communication skills appear to be sufficient, their oral communication needs improvement. Students in the degree program will eventually need to attain their flight instructor certificate, the training for which involves daily presentations of lessons, and having established good oral communication skills in previous classes will help our students be more successful in this aspect of their flight training (as well as allow them to better meet one of PCC's core outcomes)>

In order to give students further opportunities to practice oral communication, Aviation Science classes which do not currently include a presentation should be modified to include one. Options include presenting mini-lessons in smaller groups, or formal presentations of a project or idea in front of the whole class. In addition, rather than simply giving students credit for having completed a presentation, a specific rubric for evaluating the *quality* of the presentation should be developed, and implemented in more advanced classes. The department will work to develop a rubric to evaluate oral presentations over the 2012-'13 academic year.

The Aviation Science department has a wealth of established assignments and rubrics already used to assess communication, but in examining projects for these classes, it became clear that those rubrics are more specific to the assignment, rather than the PCC Core Outcomes in general. This is a theme we found echoed throughout all assessments done this year. In this case, the rubrics used to assess these projects need only minor additions in order to effectively assess oral communication in the future.



#### ***Community & Environmental Responsibility: Assessment method***

To evaluate *Community & Environmental Responsibility*, we chose to look at final projects and a response paper in AVS-127: *Intro to Aviation*. The final project in AVS-127 is described above, and involves each student devoting 10-15 hours of time working in the community. In the response paper selected for assessment, students first read a newspaper article complaining about the noise produced by airplanes and helicopters, and then wrote a response that they assumed would also be printed in a newspaper. The response paper was assessed using the rubric listed above in the *Communication* section.

#### ***Community & Environmental Responsibility: Assessment results***

Generally, students appear to have a good sense of the need for them to take individual responsibility for their actions, both in terms of how aviation and PCC is perceived in the community, and in their effect on the environment. Many students already engage in regular volunteer work, and student feedback in their final project write-ups indicate that students feel this work is beneficial. In the noise-complaint response papers, students demonstrated a good balanced opinion, acknowledging the original author's concerns and the fact that aircraft do in fact make noise, while proposing solutions that might help mitigate the situation. In this response paper, students also frequently brought up their awareness of and sometimes unease with the environmental impact of flying, often either proposing solutions or expressing desire to help reduce their environmental impact.

#### ***Community & Environmental Responsibility: Changes recommended***

Although in looking at these work samples, we agreed that generally students appear to have a good sense of community and environmental responsibility, it was difficult to quantify *why*. Over the course of a student's paper, the reader would get a clear sense that the student met this goal, but it was not easy to say specifically why they thought that was the case. The rubric used to grade the paper does not currently include

a specific section addressing this outcome. A modified grading rubric, or a more defined way of evaluating this outcome, is definitely needed in order to concretely justify results in the future.



#### ***Cultural Awareness: Assessment method***

To evaluate *Cultural Awareness*, we chose to look at a response paper in *AVS-127: Intro to Aviation*. In the response paper selected for assessment, students reflect on diversity in aviation. They watch a documentary in class on the Tuskegee Airmen, the first all-black squadron of fighter pilots, and then conduct several discussions on the lack of diversity in aviation. The response paper was assessed using the rubric listed above in the *Communication* section.

For reference, aviation is *not* a very diverse field. In 2011, the U.S. pilot population was just over 617,000. Approximately six percent of those pilots are female, and industry tracking gives a similar number for the percentage of minority pilots.

#### ***Cultural Awareness: Assessment results***

Overall, students appear to have a good awareness of the importance of diversity in aviation. Response papers include an overall impression that although large changes take time, taking individual responsibility to model good behavior and call out inappropriate behavior can go a long way toward addressing inequalities. A significant minority of student responses indicated an attitude that, although the students tolerate diversity, they do not need to do anything to actively increase diversity because, in their view, everyone has the same opportunities.

#### ***Cultural Awareness: Changes recommended***

Similar to our work assessing the previous two outcomes, although our department agrees that students generally seem to have a good sense of cultural awareness, it is difficult to quantify exactly *why* we believe this to be the case. A modified grading rubric, or a more defined way of evaluating this outcome, is definitely needed in order to concretely justify results in the future. In addition, this particular response paper is the only obvious opportunity in the *whole degree program* in which we can assess students' knowledge of cultural awareness, and the class in which this paper is written is at the beginning of students' course of study. Incorporating other assignments or topics in other classes would be greatly beneficial to helping students continue to meet this outcome.



#### ***Self-Reflection: Assessment method***

To evaluate *Self-Reflection*, we chose to look at the diversity response paper in *AVS-127: Intro to Aviation* and a final project in *AVS-267: Economics of Flight Operations*. The diversity response paper was assessed using the rubric listed above in the *Communication* section. In the final project, students were asked to identify areas they could affect to help reduce risk for a future employer. The final project was graded using the rubric below.

	Needs Improvement	Meet Expectations	Exceptional
Spelling Grammar	Several obvious errors, lack of editing. (0 Points)	Few blatant errors, but not well-constructed. (1 Point)	Well-constructed and edited. (2 Points)
References	No references, invalid references or citations did not allow checking. (0 Points)	References missing, citation(s) missing or invalid resource. (2 points)	Three valid references with proper citations. (4 points)
Thesis	(0 points) Thesis unclear or not supported.	(2 points) Thesis is presented and has some support, but not well thought-out or defended.	(4 points) Well thought-out thesis that is defended and convincing.

### ***Self-Reflection: Assessment results***

In the diversity response paper, many students incorporated a discussion of how they felt their own experiences contributed to their view of diversity.

In the final project used for the assessment, students demonstrated a good grasp of the importance of maintaining their own professional competence. Students repeatedly mentioned their awareness of their individual role in contributing to safety, and showed that they could relate the assigned topic to their own personal career goals.

### ***Self-Reflection: Changes recommended***

Similar to our work assessing all the previous outcomes, although our department agrees that students generally seem to have a good ability to self-reflect, it is difficult to quantify exactly *why* we believe this to be the case. A modified grading rubric, or a more defined way of evaluating this outcome, is definitely needed in order to concretely justify results in the future. A multitude of opportunities to assess self-reflection already exist in the majority of our Aviation Science classes, and it is just a matter of being more precise in how we evaluate them.



### ***Reflection on effectiveness of tools and processes***

During the 2011-'12 academic year, the Aviation Science department assessed four out of the six PCC Core Outcomes. In the process, and based also on the results of our 2010-'11 assessments, two things have become clear. First, spreading assessment of the outcomes equally over two years would reduce the work involved in creating the assessment report – this is a simple change, and will be reflected in the next assessment plan scheduled to be submitted in the fall of 2012. Second, and most importantly, the department discovered a distinct need for more concrete rubrics or procedures that could be used to assess the core outcomes specifically. Instructors in the department are generally in agreement that our students do indeed meet all the core outcomes, but we need a more quantitative way of demonstrating this, rather than just relying on our professional expertise and overall knowledge of the students. The Aviation Science department will make this a priority during the 2012-'13 academic year, and intends to examine other departments' assessment reports for guidance and inspiration.