

Applied Computer Graphics Program

Program Improvement Report Academic Year 2007 - 2008

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Clarke Steinback
Applied Computer Graphics Program Coordinator
College of ECC

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Applied Computer Graphics Program Assessment Report Fall 2007

1 Introduction

In an endeavor to provide the Applied Computer Graphics (APCG) graduates with a strong education and a positive experience at CSU, Chico as well as to provide high-quality preparation for entering the workforce, the APCG Program continues to assess the program learning outcomes and to poll the graduating students, and to use what we learn from this feedback to improve the program. The assessment tools used in the program also help provide the students with clear goals and feedback within courses. With the use of these tools the students are exposed to a set of rubrics in the freshman core courses that lead to additional and expanded sets of rubrics in more senior core courses, helping form a cohesive and logical linkage within and between courses. The program also utilizes a senior exit survey to help assess the program and the program learning outcomes to help further refine the curriculum and assist the students.

Upon completion of the baccalaureate degree, students in the Applied Computer Graphics (APCG) major are expected to have achieved a series of program learning outcomes as listed in Table 1.1.

Table 1.1 – APCG Program Learning Outcomes

#	Program Outcome	Label
1	Recognize and evaluate critical and aesthetic issues within computer graphics and the mixed media.	Issues
2	Apply aesthetic judgments and critical thinking skills to art and graphics related issues.	Aesthetic
3	Demonstrate mastery of specific technical, conceptual and critical abilities within computer graphics and the mixed media.	Abilities
4	Demonstrate proficiency with industrial applications to visual communication related technologies.	Proficiency
5	Communicate effectively in written format on research and creative issues.	Written
6	Communicate effectively in oral format on research and creative issues.	Oral
7	Apply critical thinking and aesthetic judgments in critiquing mixed media and computer graphics productions.	Critiquing
8	Function on multi-disciplinary teams.	Teams
9	Work collaboratively and individually with an understanding of the production process utilized in industry-standard studios.	Process
10	Demonstrate a sense of professionalism through creative and intellectual independence.	Professionalism

Table 1.2 shows the link between the program learning outcomes and the required core courses for the APCG program including when the learning outcomes are introduced, practiced and demonstrated in the program. The table also shows the outcomes that were assessed in the 2007-2008 academic year and in which course the assessment occurred. The Applied Computer Graphics Program has been steadily adding to its assessment tools over the past several years to help measure the program learning outcomes. In the 2007-2008 academic year, program learning outcome measurement rubrics were added to a variety of core courses for the program. Assessment rubrics were utilized for both direct student feedback as well as program learning outcome assessment in the freshman core courses APCG 110 *Computer Assisted Art I*, APCG

112 *Digital Photography* and APCG 117 *Concept Design and Storyboarding*, and the junior core courses APCG 330 *3-D Computer Graphics*, APCG 331 *3-D Character Modeling*, APCG 340 *Computer Animation*, and APCG 345 *Advanced Animation Pre-Production*.

Table 1.2 – Mapping Core APCG Courses to Program Learning Outcomes

Course Title	Course	Outcome									
		Issues	Aesthetic	Abilities	Proficiency	Written	Oral	Critiquing	Teams	Process	Professionalism
		1	2	3	4	5	6	7	8	9	10
Computer Assisted Art	110	I	I	I	I	I				I	
Digital Photography	112	I	P	P	P	I		I			
Concept Design & Storyboarding	117	I	P	P	P	P	P	I	I	I	
2-D Digital Animation	240	I	P	P	P		P	I		I	
3-D Computer Modeling	330	P	P	P	P	P	P	P	P	P	I
3-D Character Modeling	331	P	P	P	P		P	P		P	P
Computer Animation	340	P	P	P	D			P		P	P
Advanced Animation Pre-Prod	345	P	P	P		D	D	D	P	P	
Advanced Animation Production	445	D	D	D	D		D	D	D	D	
Advanced Animation Post-Prod	545	D	D	D	D		D	D	D	D	D
Portfolio	491						D	D			D
Writing (Communication Criticism/ Software Engineering)	CDES303/ CSCI 330					D					
Programming (Intro Comp Science/ Programming and Algorithms I)	CSCI 101/ CSCI 111	I									

I = Introduced, P = Practiced with Feedback, D = Demonstrated at the Mastery Level

 Assessed AY 07-08

The APCG Program, through these program outcome assessments and through the senior exit survey, hopes to improve the curriculum to enhance the students' educational experience and help prepare them for successful careers.

2 Program Learning Outcomes Assessment

For the 2007-2008 academic year, the Applied Computer Graphics Program implemented an assessment plan for six (6) of the ten (10) program learning outcomes. These program learning outcomes, Aesthetics, Abilities, Written Communications, Oral Communications, Teams and Process, were assessed in core freshman-level courses and core junior-level courses. An assessment rubric was developed for each program learning outcome corresponding to the assignments in the course. For this summary report and evaluation, each assessed program learning outcome is addressed including assessment tools, assessment evaluations, assessment improvement plans and changes implemented because of previous assessment results, where

applicable. The assessments are based on rubrics using a 3.0 point scale with a value of 2.0 being the target value for each rubric element.

2.1 Outcome #2 – Aesthetics

Outcome #2 – Apply aesthetic judgments and critical thinking skills to art and graphics related issues.

2.1.1 Assessment Improvement Plan

The Aesthetics outcome results from academic year 2007-2008 were overall at or above the target value. The APCG faculty are committed to continue to stress the aesthetic elements and will continue to strive to convey to the students the importance of these elements in their academic work and understand how it is important for their vocational endeavors.

2.1.2 Changes Implemented Because of Previous Assessment Results

To improve Aesthetics outcome results in the courses measured during the 2006-2007 academic year assessment round (APCG 112 and 330), the faculty provided additional examples of work from industry showing the implementation of aesthetics attributes with class discussion, and worked at providing timely feedback on the aesthetic throughout the term with class discussion on means to improve the aesthetic elements. In APCG 330 the students were also given a number of additional tutorial assignments to practice aesthetic aspects prior to employing them in larger, more comprehensive assignments. In both courses the average scores improved in the academic year 2007-2008.

2.2 Outcome #3 – Abilities

Outcome #3 – Demonstrate mastery of specific technical, conceptual and critical abilities within computer graphics and the mixed media (Abilities)

2.2.1 Assessment Improvement Plan

Considerations to improve the Abilities in APCG 117 include:

- Continue the use of smaller focused assignments to practice the abilities prior to implementing them in larger, more comprehensive assignments.
- Provide timely feedback on the abilities throughout the term with class discussion on means to improve the abilities.

Considerations to improve the Abilities in APCG 331 include:

- In AY 07-08, the Rigging element which was conceptually new for the student and was implemented in a single assignment late in the semester was the lowest measured ability. The faculty feel that to assist the students in developing the necessary skills, the addition of smaller assignments to practice the abilities prior to implementing them in the larger, more comprehensive assignment may assist in the students achieving the target level.
- Provide timely feedback on the abilities throughout the term with class discussion on means to improve the abilities.

Considerations to improve the Abilities in APCG 340 include:

- Additional examples of work from industry showing the implementation of the abilities.
- Provide timely feedback on the abilities throughout the term with class discussion on means to improve the abilities.

2.2.2 Changes Implemented Because of Previous Assessment Results

To improve the results measured in the previous assessment round in AY 06-07 for APCG 117 and 330, the faculty provided additional examples of work from industry, and worked at providing timely feedback. In APCG 117 the students were also given a number of smaller assignments to practice the abilities prior to employing them in larger, more comprehensive assignments which in turn lead to a different set of assignments and measurement rubrics for AY 07-08. In APCG 330, the students were provided with additional examples from industry as both demonstrations of how the abilities are used and as motivational material. In both courses the average scores improved in the academic year 2007-2008.

2.3 Outcome #5 – Written Communications

Outcome #5 – Communicate effectively in written format on research and creative issues.
(Written Communications)

2.3.1 Assessment Improvement Plan

To continue achieving the goals for written communications in both APCG 112 and APCG 345, the faculty will continue to:

- Discuss effective writing styles and skills.
- Discuss why effective written skills are important and pertinent to both academic and vocational careers.
- Provide timely feedback on assignments throughout the term with class discussion on means to improve written communications skills.

2.4 Outcome #6 – Oral Communications

Outcome #6 – Communicate effectively in oral format on research and creative issues (Oral Communications)

2.4.1 Assessment Improvement Plan

To continue achieving the goals for Oral Communications in both APCG 117 and APCG 330, and to improve the results in APCG 345, the faculty will continue to utilize or initiate:

- Discussion of effective presentation techniques.
- Reinforce the motivation for developing effective presentation skills in both academic and vocational careers.
- Show videos of professionals in the field presenting similar oral presentations with accompanying discussion.

- Provide timely feedback on presentations throughout the term with class discussion on means to improve presentations.

2.4.2 Changes Implemented Because of Previous Assessment Results

The additional discussion of presentation techniques, the additional discussion of the rationale for improving presentation skills, the expanded use of example presentations, along with more timely feedback appear to have helped improve the average oral communications scores for both APCG 117 and 330 between AY 06-07 and AY 07-08. Overall in both courses the average scores improved in the academic year 2007-2008.

2.5 Outcome #8 – Teams

Outcome #8 – Function on multi-disciplinary teams (Teams)

2.5.1 Assessment Improvement Plan

To continue achieving the goals for the team outcome in both APCG 117 and APCG 330, we will continue to stress the importance of communications between team members and discuss collaborative strategies and time management. The faculty will also collect data for the Teams elements in both APCG 117 and 330 for the upcoming academic year to permit the continued comparison between the years.

2.5.2 Changes Implemented Because of Previous Assessment Results

To improve results measured in APCG 330 between the prior academic year and the current reported year, the faculty emphasized the importance of communications between team members and discussed collaborative strategies and time management techniques. The results from academic year 2007-2008 improved compared to the prior year.

2.6 Outcome #9 – Process

Outcome #9 – Work collaboratively and individually with an understanding of the production process utilized in industry-standard studios. (Process)

2.6.1 Assessment Improvement Plan

With the initial rubric employed to assess the Process outcome, the faculty will expand the rubric elements and the courses the rubrics are used in during the next academic year. With the additional assessment tools used to measure this outcome, the faculty will have a better gauge as to the direction and focus necessary to foster understanding of the production process.

3 Senior Survey

The senior surveys provide direct information about student plans after graduation, their perceptions about learning and their level of satisfaction with various aspects of their education at CSU, Chico and the Applied Computer Graphics Program.

3.1 Senior Survey Assessment Improvement Plan

From the Educational Satisfaction results, the items that are of concern that the program has potential control over are the quality of lab facilities and availability of courses. Both of these issues should be address in the next academic year and both involve obtaining additional resources:

- For the lab facilities issue, we will need to seek funding to upgrade the outdated five-year-old computers and seek assistance in better maintaining the labs and infrastructure. The program should also seek funding to acquire newer industrial-standard software and update existing software packages.
- For the availability of courses, we will need to seek permission and funding to increase the faculty pool. Even with the increased number of majors there has been no change in the number of full-time faculty in the program. Currently the three full-time faculty are all overworked and the program has no means of scheduling additional sections or new courses to accommodate the students needs or desires. With the state budget constraints and its repercussions, we may not be able to fully address this rising concern of the students in the upcoming academic year.

From the program specific supplemental questions, the queries that raise concern that should be address in the upcoming academic year are:

- Help with career placement. To assist in improving the program in regards to career placement, the faculty will endeavor to create connections with industry especially through contacts with alumni; to facilitate visits to and by potential employers; to attempt to help the students develop the social network necessary in this field to obtain employment.
- Help with internship placement. The same activities and efforts in improving career placement should be constructive in improving internship placement.

4 Conclusions

Overall the assessment shows that the students are achieving the program outcomes within the courses at an acceptable level and that the exiting seniors feel prepared and express satisfaction with their educational experience in the Applied Computer Graphics Program and at Chico State with reservations or concerns about computer laboratories in the program and assistance in internship and careers placement.

4.1 2007-2008 Assessment

For the most part, the assessment of the Program Learning Outcomes shows a positive relationship between the targeted goals and the measured results. The program appears to be providing adequate background and tools for the students to succeed at an acceptable level. The improvements noted in the individual program learning outcomes need be implemented to

address the minor deviation from the target values and the assessment needs to be expanded to encompass more of the courses in the program to further determine the levels of achievement.

The senior survey shows that the graduates express a high degree of satisfaction with their educational experience at Chico State with noted dissatisfaction with lab facilities. The graduates indicated that they feel well prepared. The students also indicated a level of dissatisfaction with the assistance in internship and career placement.

4.2 2008-2009 Assessment Plan

4.2.1 Program Learning Outcomes Assessment Plan

Looking to the future, to further improve and enhance the program and educational experience for our students, we will add additional program learning outcomes to the 2008-2009 assessment plan as well as expanding the courses in which these outcomes are measured. Within courses that currently implement the assessment plan, the improvement plans will be implemented and additional assignments with accompanying rubrics will be added to the assessment plan.

For the 2008-2009 academic year the following program learning outcomes will be assessed in specific core APCG courses:

- Outcome #2 – Aesthetic will be assessed in all required core APCG courses: APCG 110, APCG 112, APCG 117, APCG 240, APCG 330, APCG 331, APCG 340, APCG 345, APCG 445 and APCG 545 using specific variants of the rubric associated with assignments in each of the courses. The evaluation will be based on both self-evaluation and instructor evaluation.
- Outcome #3 – Abilities will be assessed in all required core APCG courses: APCG 110, APCG 112, APCG 117, APCG 240, APCG 330, APCG 331, APCG 340, APCG 345, APCG 445 and APCG 545 using specific variants of the rubric associated with assignments in each of the courses. The evaluation will be based on both self-evaluation and instructor evaluation.
- Outcome #5 – Written will be assessed in required core APCG courses: APCG 110, APCG 112, APCG 117, APCG 330, and APCG 345, using assignment specific variants of the rubric. The evaluation will be based on instructor evaluation.
- Outcome #6 – Oral will be assessed in APCG 117, APCG 240, APCG 330, APCG 331, APCG 345, APCG 445 and APCG 545 (all required courses for the major) using both self-evaluation and instructor evaluation.
- Outcome #7 – Critiquing will be introduced as an assessed outcome in APCG 330, APCG 445, APCG 491, and APCG 545 (all required courses for the major) using instructor evaluation. This assessment will explore the means to measure the program learning outcome in existing assignments in the courses.
- Outcome #8 – Teams will be assessed in APCG 117, APCG 330, APCG 345, APCG 445 and APCG 545 (all required courses for the major) using both self-evaluation.


- Outcome #9 – Process assessment will be expanded to include APCG 117, APCG 330, APCG 340, APCG 345, APCG 445 and APCG 545 (all required courses for the major) using both self-evaluation and instructor evaluation.

Table 4.2.1 shows the mapping of core APCG courses to Program Learning Outcomes with planned assessment for AY 08-09 highlighted.

Table 4.2.1– Mapping Core APCG Courses to Program

		Program Learning Outcome									
		Issues	Aesthetic	Abilities	Proficiency	Written	Oral	Critiquing	Teams	Process	Professionalism
Course Title	Course	1	2	3	4	5	6	7	8	9	10
Computer Assisted Art	110	I	I	I	I	I				I	
Digital Photography	112	I	P	P	P	I		I			
Concept Design & Storyboarding	117	I	P	P	P	P	P	I	I	I	
2-D Digital Animation	240	I	P	P	P		P	I		I	
3-D Computer Modeling	330	P	P	P	P	P	P	P	P	P	I
3-D Character Modeling	331	P	P	P	P		P	P		P	P
Computer Animation	340	P	P	P	D			P		P	P
Advanced Animation Pre-Prod	345	P	P	P		D	D	D	P	P	
Advanced Animation Production	445	D	D	D	D		D	D	D	D	
Advanced Animation Post-Prod	545	D	D	D	D		D	D	D	D	D
Portfolio	491						D	D			D
Writing (Communication Criticism/ Software Engineering)	CDES303/ CSCI 330					D					
Programming (Intro Comp Science/ Programming and Algorithms I)	CSCI 101/ CSCI 111	I									

I = Introduced, P = Practiced with Feedback, D = Demonstrated at the Mastery Level

 Assessed AY 07-08

 Planned Assessed AY 08-09 (*italic*)

4.2.2 Senior Exit Survey Assessment Plan

The APCG Program will also continue to have the senior exit survey administered to ascertain the students’ perspective on their preparedness and on their educational experience here at Chico State.

4.2.3 Additions to the Assessment Plan

With the growing number and depth of assessment elements in place to consider the Program Learning Outcomes and with the Senior Exit Survey measuring satisfaction with the program,

APCG needs to turn to gathering extra-program feedback. For the academic year 2008-2009, APCG plans to create and implement an alumni survey instrument and an employer survey instrument. It is hoped that with these instruments addressing individuals and entities not currently in the program, we may be able to gather feedback as to the programs effectiveness related to the vocational career of our graduates, and seek input as to changes to curriculum and teaching that will improve the program.

4.3 Assessment Improvement Plan

As noted above, the Applied Computer Graphics Program continues to seek means to improve the education and experience our graduates receive. For the next academic year, we will

- Implement specific Program Learning Outcome improvement plans as outline in the individual outcome sections (see 2.1.1, 2.2.1, 2.3.1, 2.4.1, 2.5.1 and 2.6.1).
- Expand the breadth of courses covered by the Program Learning Outcomes currently measured (see 4.2.1).
- Initiate measurements of Program Learning Outcome #7 Critiquing (see 4.2.1).
- Review the three Program Learning Outcomes not yet measured – Outcome #1 Issues, Outcome #4 Proficiency and Outcome #10 Professionalism, and consider revisions in these outcomes if we feel it will benefit the program as well as strategies to measure these outcomes.
- Seek resources to address the deficiency in the computer labs.
- Seek authorization and resources to increase the faculty pool to address the issue of availability of courses in the program, though tempering this item with the constraints imposed by the state budget constraints.
- Seek resources to assist faculty in developing connections to industry to improve the support for students in internships and career placement.

To facilitate this improvement plan and monitor its progress, the APCG faculty will meet before each semester starts and several times during each semester. These meetings will enable APCG faculty to share strategies and ideas to improve the program and the assessment of the program.

4.4 Changes Implemented Because of Previous Assessment Results

The improvement plan generated from the previous assessment cycle included the augmentation to courses already measured, adding courses Program Learning Outcomes already being measured, and adding new Program Learning Outcomes to the assessment pool.

Course augmentation to improve assessed results:

- Outcome #2 – Aesthetic: for both APCG 112 and 330 additional examples of work from industry showing the implementation of the aesthetics with class discussion and an effort was made to provide timely feedback on the aesthetic throughout the term with class discussion on means to improve the aesthetic elements. For APCG 330 additional

smaller focused assignments to practice the aesthetic prior to employing them in larger, more comprehensive assignments were added.

- Outcome #3 – Abilities: for both APCG 117 and 330 additional examples of work from industry showing the implementation of the abilities were shown to enhance motivation for the students and an effort was made to provide timely feedback on the aesthetic throughout the term with class discussion on means to improve the abilities elements. For APCG 117 additional smaller focused assignments to practice the abilities prior to employing them in larger, more comprehensive assignments were added.
- Outcome #6 – Oral Communications: for both APCG 117 and 330 discuss effective presentation techniques and motivation for effective presentation skills were used prior to each presentation, and an effort was made to provide timely feedback on the aesthetic throughout the term with class discussion on means to improve the abilities elements.
- Outcome #8 – Teams: in APCG 330 prior to the collaborative project, the importance of communications between team members, collaborative strategies and time management techniques were discussed.

Courses added to the current mix of measured Program Learning Outcomes:

- The program expanded the use of assessment tools in freshman-level and junior-level courses for Outcome #2 Aesthetics and Outcome #3 Abilities. We did not deploy these tools in sophomore courses as planned
- Outcome #6 – Oral Communications was implemented APCG 345 and continued to be assessed in APCG 117 and APCG 330 as planned.

Additional Program Learning Outcomes added to assessment:

- The program added assessment of Outcome #5 Written Communications, and Outcome #9 Process.
- The program did not assess Outcome #4 Proficiency as planned.

Although the entire improvement plan was not implemented, a large portion of it was put into place for academic year 2007-2008. With the improvements seen in the currently measured Program Learning Outcomes, we feel that the improvement plan has been successful.

Overall, the assessment of the Program Learning Outcomes indicates success in meeting the goals set forth by the program. The Senior Exit Survey demonstrates that the graduating seniors for the most part feel positive about their education and feel prepared for entering their career. Thus the faculty confident in continue their instructional practices to deliver best the education to the students and expand the assessments to encompass more of the courses and more of the Program Learning Outcomes as a means to monitor the teaching effectiveness. The current success coupled with the improvement plan for the next assessment cycle should help improve the program to benefit the students.