

**Program**

**BS in Applied Computer Graphics**

**Options in:**

**Production**

**Technical**

**Minor in Applied Computer Graphics**

**Who Majors in Applied Computer Graphics?**

Do you want to make video games or animations? Do you want to be a digital animator, video game designer, 3-D modeler, texture artist, concept artist, special effects artist, graphic artist, storyboard artist, game programmer, or other graphics expert? Do you want to make the most of your creativity? If so, Applied Computer Graphics can help you build on your desires. Applied Computer Graphics is the synergy of art and technology, and affords you an opportunity to put your imagination to work in this realm of collaborative teams creating multimedia experiences.

**What Can I Do with an Applied Computer Graphics Degree?**

Applied Computer Graphics combines art and technology as a means of expressing creative minds. Our students design rich multimedia environments that communicate, inform, and entertain. The ubiquitous nature of multimedia in our world provides a growing variety of career destinations. Our diverse student population enters careers in video game, film, television, commercials, web, business, science and a host of other enterprises. The need to communicate effectively with multimedia experiences is embedded in all fields of study and work, and reaches everyone's lives. Thus Applied Computer Graphics provides the avenue for innovative and motivated students to pursue a wide variety of exciting career opportunities.

**What About an Applied Computer Graphics Minor/Second Major?**

All fields of study or work need or could use rich multimedia environments to communicate, inform, or entertain. The art, technologies and creative nature of Applied Computer Graphics offer innovative career opportunities when combined with domain specific knowledge from another discipline. The Applied Computer Graphics program encourages students to consider minors or second majors to support their career aspirations.



**Honors in Applied Computer Graphics**

If you perform well in your major courses you may be invited to pursue an individual research project working closely with a faculty member whose area of expertise matches the topic you wish to investigate.

**Internship Program**

Internships are an invaluable means to gain experience in your field and provide a tremendous opportunity to make connections in industry. By providing practical experience in courses and projects, the Applied Computer Graphics program helps provide the background for internships and encourages students to pursue these opportunities.

**Faculty**

Applied Computer Graphics is interdisciplinary by nature, and the faculty reflect this by their diverse academic and artistic backgrounds, complemented by industrial experience. All have a strong commitment to excellence in teaching, and engage in professional development.

**Academic Activities**

Activities in the Applied Computer Graphics revolve around its applied nature. Students in the program have opportunities to gain practical experience through on-campus productions studios (Chico State Game Studios, IMC Productions, etc.) as well as many student projects through the Computer Graphics Club – the student organization for the major. These experiences aid the student in honing production skills and understanding the production pipeline along with establishing the networking that is critical for careers in the industry.

**Applied Computer Graphics**

College of Engineering, Computer Science, and Construction Management  
Interim Dean: Michael Ward

**Applied Computer Graphics Program**

**O'Connell Technology Center 236**

**530-898-4891**

**e-mail: [graphics@ecst.csuchico.edu](mailto:graphics@ecst.csuchico.edu)**

**<http://graphics.ecst.csuchico.edu>**

**Coordinator and Advisor: Clarke Steinback**

## The Bachelor of Science in Applied Computer Graphics

### Total Course Requirements for the Bachelor's Degree: 120 units

See "Requirements for the Bachelor's Degree" in the *University Catalog* for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

A suggested Major Academic Plan (MAP) has been prepared to help students meet all graduation requirements within four years. Please request a plan from your major advisor or view it and other current advising information at <http://em.csuchico.edu/aap/ProgramSearch>.

### General Education Requirements: 48 units

See "General Education Requirements" in the *University Catalog* and the *Class Schedule* for the most current information on General Education Requirements and course offerings. The course requirements marked below with an asterisk (\*) may also be applied toward General Education.

### Diversity Course Requirements: 6 units

See "Diversity Requirement" in the *University Catalog*. Most courses taken to satisfy these requirements may also apply to General Education.

### U.S. History, Constitution, and American Ideals: 6 units

See "U.S. History, Constitution, and American Ideals" under "Bachelor's Degree Requirements". This requirement is normally fulfilled by completing HIST 130 and POLS 155 or approved equivalents. Courses used to satisfy this requirement do not apply to General Education.

### Literacy Requirement:

See "Mathematics and Writing Requirements" in the *University Catalog*. Writing proficiency in the major is a graduation requirement and may be demonstrated through satisfactory completion of a course in your major which has been designated as the Writing Proficiency (WP) course for the semester in which you take the course. Students who earn below a C- are required to repeat the course and earn a C- or better to receive WP credit. See the *Class Schedule* for the designated WP courses for each semester. You must pass ENGL 130 (or its equivalent) with a C- or better before you may register for a WP course.

### Course Requirements for the Major: 67-69 units

Completion of the following courses, or their approved transfer equivalents, are required of all candidates for this degree. Additional required courses, depending upon the selected option or advising pattern, are outlined following the major core program requirements.

### Major Core Program: 30 units

#### 10 courses required:

APCG 110	Computer-Assisted Art I	3.0	FS *
APCG 112	Digital Photography	3.0	FS
APCG 117	Concept Design & Storyboarding	3.0	FS
APCG 240	2-D Digital Animation	3.0	FA
Prerequisites: APCG 110.			
APCG 330	3-D Computer Modeling	3.0	FS
Prerequisites: APCG 110.			
APCG 331	3-D Character Modeling	3.0	FA
Prerequisites: APCG 330.			
APCG 340	Computer Animation	3.0	FS
Prerequisites: APCG 330.			
APCG 345	Adv Animation Pre-Production	3.0	FS
Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher, APCG 117.			
APCG 445	Advanced Animation Production	3.0	FA
Prerequisites: APCG 340, APCG 345.			
APCG 545	Adv Animation Post-Production	3.0	FS
Prerequisites: APCG 445.			

### Supplemental Program Requirements: 15 units

Select one of the following supplemental programs, Art Studio or Communication Design.

#### Art Studio Program: 15 units

##### 2 courses required:

ARTS 125	Basic Drawing	3.0	FS
ARTS 126	Basic Drawing	3.0	FS

Prerequisites: ARTS 125 or faculty permission.

#### 1 course selected from:

ARTH 101	Art History Survey	3.0	FS *
ARTH 102	Art History Survey	3.0	FS *

#### 1 course selected from:

ARTS 122	2D Design	3.0	FS
ARTS 123	3D Design	3.0	FS

#### 1 course selected from:

One Art Studio course approved in advance by your APCG advisor.

### Communication Design Program: 15 units

#### 2 courses required:

CDES 103	Writing for Electronic Media	3.0	FS
Prerequisites: ENGL 130.			
CDES 141	Media Aesthetics	3.0	FS

#### 3 courses selected from:

CDES 214	Computer Graphics	3.0	FS
CDES 216	Intro: Digital Audio in Media	3.0	FS
CDES 222	Intro to WWW Design & Pub	3.0	FS
CDES 261	Found of Electronic Media	3.0	FS
CDES 314	Intro Multimedia Dsgn & Dev	3.0	FA
Prerequisites: Basic computer literacy, faculty permission.			
CDES 322	Advanced WWW Design & Publish	3.0	FS
Prerequisites: CDES 222.			
CDES 323	Human Interface Design	3.0	FA
Prerequisites: CDES 222.			
CDES 333	Graphic Visualization	3.0	FS
Prerequisites: CDES 230 for CDES majors. Other majors require instructor permission.			
CDES 366	Field Video Production	3.0	FS
Prerequisites: CDES 103, CDES 206, CDES 216; CDES 141, CDES 261 (both with a grade of C or higher).			
CDES 414	Adv Multimedia Dsgn & Develop	3.0	SP
Prerequisites: CDES 314.			
CDES 466	Studio Video Production	3.0	FS
Prerequisites: CDES 366.			
CDES 468	Video Production Workshop	3.0	FA
Prerequisites: CDES 366.			

### Major Option Course Requirements: 22-24 units

The following courses, or their approved transfer equivalents, are required dependent upon the option chosen. Students must select one of the following options for completion of the major course requirements.

### The Option in Production: 22-23 units

#### 4 courses required:

APCG 389	Industry Internship	1.0-3.0	FS
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Prerequisites: Faculty permission.

Note: APCG 389 must be taken for 3 units.

APCG 491	Portfolio	1.0	FS
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Prerequisites: APCG 340.

APCG 499	Special Problems	1.0-3.0	FS
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Prerequisites: Faculty permission.

Note: APCG 499 must be taken for 3 units.

CDES 303	Communication Criticism	3.0	FS WP
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Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher.

#### 1 course selected from:

CSCI 101	Intro to Computer Science	3.0	FS
CSCI 111	Programming and Algorithms I	4.0	FS

Prerequisites: At least one year of high school algebra and strong computer skills or CSCI 101.

### Applied Computer Graphics Electives: 9 units

#### 3 courses selected from:

Note: Select a minimum of one upper-division course.

APCG 170	Video Game Design	3.0	FA
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APCG 180	Scripting & Prog for Comp Grph	3.0	SP
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APCG 360	Web Page Design	3.0	FA
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APCG 370	Video Game Development	3.0	SP
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Prerequisites: APCG 170.

APCG 372	Level Design	3.0	FA
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Prerequisites: APCG 170

APCG 420	Digital Lighting and Texturing	3.0	FA
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Prerequisites: APCG 330.

APCG 422	Dig Compositing & Special Eff	3.0	SP
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Prerequisites: APCG 240.

APCG 441	3-D Character Animation	3.0	FA
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Prerequisites: APCG 340.

APCG 470	Video Game Production	3.0	FA
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Prerequisites: APCG 370.

APCG	495	Advanced Production	3.0	FS
KINE	318	3-D Desktop Video Applications	3.0	FS
KINE	524	Biomechanical Analysis	3.0	FS
Prerequisites: KINE 322 and basic computer literacy.				
THEA	112	Acting for Non-Majors	3.0	FS *
THEA	371	Lighting Design	3.0	FA
Prerequisites: THEA 121, THEA 170, THEA 250.				
Corequisites: Concurrent enrollment in THEA 205 for lighting crew is required.				

**The Option in Technical: 24 units**

**4 courses required:**

CSCI	111	Programming and Algorithms I	4.0	FS
Prerequisites: At least one year of high school algebra and strong computer skills or CSCI 101.				
CSCI	211	Programming and Algorithms II	4.0	FS
Prerequisites: CSCI 111 with a grade of C- or higher or EECE 135.				
CSCI	311	Algorithms and Data Structures	4.0	FS
Prerequisites: CSCI 211 with a grade of C- or higher; MATH 217 recommended.				
CSCI	430	Software Engineering	3.0	FA
Prerequisites: CSCI 311, ENGL 130 (or its equivalent), both with a grade of C- or higher.				

**Applied Computer Graphics Electives: 9 units**

**3 courses selected from:**

Note: Select a minimum of two upper-division courses.

APCG	170	Video Game Design	3.0	FA
APCG	180	Scripting & Prog for Comp Grph	3.0	SP
APCG	360	Web Page Design	3.0	FA
APCG	370	Video Game Development	3.0	SP
Prerequisites: APCG 170.				
APCG	372	Level Design	3.0	FA
Prerequisites: APCG 170				
APCG	420	Digital Lighting and Texturing	3.0	FA
Prerequisites: APCG 330.				
APCG	422	Dig Compositing & Special Eff	3.0	SP
Prerequisites: APCG 240.				
APCG	441	3-D Character Animation	3.0	FA
Prerequisites: APCG 340.				
APCG	470	Video Game Production	3.0	FA
Prerequisites: APCG 370.				
APCG	495	Advanced Production	3.0	FS
CSCI	566	Computer Graphics Programming	3.0	FA
Prerequisites: CSCI 311 with a grade of C- or higher.				
CSCI	567	Graphical User Interfaces	3.0	F2
Prerequisites: CSCI 311 with a grade of C- or higher.				
CSCI	580	Artificial Intelligence	3.0	FA
Prerequisites: CSCI 311 with a grade of C- or higher.				
KINE	318	3-D Desktop Video Applications	3.0	FS
KINE	524	Biomechanical Analysis	3.0	FS
Prerequisites: KINE 322 and basic computer literacy.				
THEA	112	Acting for Non-Majors	3.0	FS *
THEA	371	Lighting Design	3.0	FA
Prerequisites: THEA 121, THEA 170, THEA 250.				
Corequisites: Concurrent enrollment in THEA 205 for lighting crew is required.				

**Electives Requirement:**

To complete the total units required for the bachelor's degree, select additional elective courses from the total University offerings. You should consult with an advisor regarding the selection of courses which will provide breadth to your University experience and possibly apply to a supportive second major or minor.

**Grading Requirement:**

All courses taken to fulfill major course requirements must be taken for a letter grade except those courses specified by the department as Credit/No Credit grading only.

A grade of C- or higher is required in all Applied Computer Graphics courses required for the major.

**Advising Requirement:**

Advising is mandatory for all majors in this degree program. Consult your undergraduate advisor for specific information.

**Honors in the Major**

Honors in the Major is a program of independent work in your major. It requires 6 units of honors course work completed over two semesters.

The Honors in the Major program allows you to work closely with a faculty mentor in your area of interest on an original performance or research project. This year-long collaboration allows you to work in your field at a professional level and culminates in a public presentation of your work. Students sometimes take their projects beyond the University for submission in professional journals, presentation at conferences, or academic

competition. Such experience is valuable for graduate school and professional life. Your honors work will be recognized at your graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are

1. You must take 6 units of Honors in the Major course work. All 6 units are honors classes (marked by a suffix of H), and at least 3 of these units are independent study (399H, 499H, 599H) as specified by your department. You must complete each class with a minimum grade of B.
2. You must have completed 9 units of upper-division course work or 21 overall units in your major before you can be admitted to Honors in the Major. Check the requirements for your major carefully, as there may be specific courses that must be included in these units.
3. Your cumulative GPA should be at least 3.5 or within the top 5% of majors in your department.
4. Your GPA in your major should be at least 3.5 or within the top 5% of majors in your department.
5. Most students apply for or are invited to participate in Honors in the Major during the second semester of their junior year. Then they complete the 6 units of course work over the two semesters of their senior year.
6. Your honors work culminates with a public presentation of your honors project.

While Honors in the Major is part of the Honors Program, each department administers its own program. Please contact your major department or major advisor to apply.

While Honors in the Major is part of the Honors Program, each department administers its own program. Please contact your major department or major advisor to apply.

**Honors in Applied Computer Graphics**

In addition to the common requirements for the Honors in the Major program given above, the Honors in Applied Computer Graphics program includes the following:

1. You must be recommended by a faculty member.
2. Students who are admitted to the department's Honors in the Major program must complete 3 units of APCG 445H, CSCI 465H, CSCI 566H, or CSCI 567H, with a minimum grade of B. Unless other arrangements are made, the professor instructing the course you take becomes your faculty mentor. It is during this time that you must define a research problem or performance area and develop an Honors Research Project/Thesis proposal in preparation for work in APCG 499H. You must also maintain a minimum GPA of 3.0 in your senior year.
3. Each Honors in the Major class requires completion of the course plus an additional Honors project and culminates with a public presentation of your Honors project.

**Minor in Applied Computer Graphics**

**Course Requirements for the Minor: 21 units**

The following courses, or their approved transfer equivalents, are required of all candidates for this minor.

**3 courses required:**

APCG	110	Computer-Assisted Art I	3.0	FS *
APCG	112	Digital Photography	3.0	FS
APCG	117	Concept Design & Storyboarding	3.0	FS

**3 units selected from:**

Any Applied Computer Graphics (APCG) courses.

**9 units selected from:**

Any upper-division (300/400/500-level) Applied Computer Graphics (APCG) courses. These courses must be selected in consultation with the Applied Computer Graphics advisor.

**The Faculty**

**Frank L. Pereira**, 2006, Lecturer B, MA, CSU Chico.  
**John P. Pozzi**, 2005, Lecturer B, MA, CSU Chico.  
**Clarke H. Steinback**, 1998, Program Coordinator, Assoc Professor, PhD, UC Santa Cruz.  
**Richard A. Vertolli**, 1988, Lecturer A, MS, CSU Chico.

**Applied Computer Graphics Course Offerings**

Please see the section on "Course Description Symbols and Terms" in the University Catalog for an explanation of course description terminology and symbols, the course numbering system, and course credit units. All courses are lecture and discussion and employ letter grading unless otherwise stated. Some prerequisites may be waived with faculty permission. Many syllabi are available on the Chico Web.

**APCG 110 Computer-Assisted Art I 3.0 Fa/Spr**

APCG 110 provides an introduction to computer graphics and art. Students use the computer as a tool for creating static and animated images. Basic instruction in design and color relationships is provided. The writing component may include research reports from current graphics publications and/or attendance and discussion of art exhibitions. 1.0 hours discussion, 4.0 hours activity. This is an approved General Education course. Special fee required; see the Class Schedule. (002287)

**APCG 112 Digital Photography 3.0 Fa/Spr**

An introduction to digital photography that explores the composition and aesthetics of photography. Emphasis is on concepts and techniques of image manipulation software. The course addresses printing and displaying photographic portfolios. 2.0 hours activity, 2.0 hours lecture. Special fee required; see the Class Schedule. (015869)

**APCG 117 Concept Design and Storyboarding 3.0 Fa/Spr**

An in-depth look into pre-production process as it directly pertains to storyboard creation, character development and design, pre-visualization techniques, and principles of concept design. 2.0 hours activity, 2.0 hours lecture. (015870)

**APCG 170 Video Game Design 3.0 Fall**

An introduction course to video game design, studying the art, technology, and science involved in the creation and development of video games. The course covers video game history, game theory, design of computer-based games, delivery systems, development cycle, case studies, ethical and social issues, and emerging technologies and trends. This course emphasizes the understanding and the interdisciplinary nature of video game design. This is not a computer programming course. 2.0 hours activity, 2.0 hours lecture. (020239)

**APCG 180 Scripting and Programming for Computer Graphics 3.0 Spring**

This course introduces application scripting and programming to visual artists using scripting and programming environments embedded in applications and integrated graphical development environments. Fundamental scripting techniques for computer modeling, animation, video game and other visual media will be explored. Elementary application programs will be designed, implemented and tested. 2.0 hours activity, 2.0 hours lecture. (020648)

**APCG 240 2-D Digital Animation 3.0 Fall**

Prerequisites: APCG 110.  
 The course explores the basic principles and techniques of motion such as in-betweening, timing, squash and stretch, and rotoscoping. Students produce animated works that demonstrate these principles and techniques and that effectively communicate with the audience. 1.0 hours lecture, 4.0 hours activity. Special fee required; see the Class Schedule. (020240)

**APCG 330 3-D Computer Modeling 3.0 Fa/Spr**

Prerequisites: APCG 110.  
 This course uses 3-D modeling and animation software in developing 3-D computer models and creating presentations of those models in story-telling still scenes. The tools, techniques, and topics studied include basic and advanced 3-D modeling tools, 3-D scene layout, lighting, texturing, and rendering. 1.0 hours discussion, 4.0 hours activity. Special fee required; see the Class Schedule. (002317)

**APCG 331 3-D Character Modeling 3.0 Fall**

Prerequisites: APCG 330.  
 A study of the necessary principles and techniques of creating digital 3-D characters. Students learn the necessary skills for modeling characters, creating effective anatomy, and rigging characters for animation purposes. 1.0 hours lecture, 4.0 hours activity. Special fee required; see the Class Schedule. (020241)

**APCG 340 Computer Animation 3.0 Fa/Spr**

Prerequisites: APCG 330.  
 For both majors and non-majors. The concepts of computer imaging and animation are taught in this project-based class. Focus is on the principles of animation and how they apply to current computer animation techniques. This class emphasizes both creative and technical skills. 1.0 hours discussion, 4.0 hours activity. Special fee required; see the Class Schedule. (002366)

**APCG 345 Advanced Animation Pre-Production and Story Development 3.0 Fa/Spr**

Prerequisites: ENGL 130 (or its equivalent) with a grade of C- or higher, APCG 117.  
 Concentration on story development as it directly relates to Computer Animation. Students write a treatment, script, and storyboard for an animation project. Emphasis is placed on understanding the story structure, writing interesting dialogue and developing an in-depth storyboard. The course gives students a practical approach to creating the pre-production component of an animated "short." (015871)

**APCG 360 Web Page Design 3.0 Fall**

This course focuses on the study of design and implementation issues for Web page creation and maintenance from the perspective of programming and writing code. Topics include page purpose, content, audience, navigation, speed, style, and maintenance issues, mark-up language tags, style sheets, dynamic mark-up language, scripting. Students are required to work collaboratively to produce functional sites and make verbal presentations. 2.0 hours activity, 2.0 hours lecture. (002322)

**APCG 370 Video Game Development 3.0 Spring**

Prerequisites: APCG 170.  
 The course covers the principles of game design, gaming strategies, game production, and marketing. Students learn to function as a productive member of an interdisciplinary game design team to plan, document, and develop a video game concept. 2.0 hours activity, 2.0 hours lecture. (020242)

**APCG 372 Level Design 3.0 Fall**

Prerequisites: APCG 170  
 This course introduces the concepts and tools to create levels for games and simulations. Fundamentals architecture theory, critical path and flow, dilemmas, balancing, playtesting, and storyboarding relating to level design are studied. Existing game levels are studied and analyzed. Original game levels are created using industry toolsets to meet game design objectives 2.0 hours activity, 2.0 hours lecture. (020653)

**APCG 389 Industry Internship 1.0-3.0 Fa/Spr**

Prerequisites: Faculty permission.  
 This internship is offered for 1.0-3.0 units. Students must register directly with a supervising faculty member. You may take this course more than once for a maximum of 15.0 units. Credit/no credit grading only. (020127)

**APCG 398 Special Topics 1.0-3.0 Fa/Spr**

This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. (015892)

**APCG 399 Special Problems 1.0-3.0 Fa/Spr**

Prerequisites: Faculty permission.  
 This course is an independent study offered for 1.0-3.0 units. You must register directly with a supervising faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only. (020135)

**APCG 420 Digital Lighting and Texturing 3.0 Fall**

Prerequisites: APCG 330.  
 This course explores the techniques used for simulating realistic lighting and texturing in 2D and 3D environments and develops student skills in accurate image creation. 1.0 hours lecture, 4.0 hours activity. (020243)

**APCG 422 Digital Compositing and Special Effects 3.0 Spring**

Prerequisites: APCG 240.  
 This course explores the concepts of digital compositing and special effects production. Students study the process of integrating images from multiple sources into a single, seamless whole image, and learn techniques and concepts for special effects production. Tools and methods for digital compositing that work for both single and large sequences of images and special effects pertaining to animation are explored. 1.0 hours lecture, 4.0 hours activity. (020244)

**APCG 441 3-D Character Animation 3.0 Fall**

Prerequisites: APCG 340.  
This course covers the study of motion, timing and acting as they apply to animated characters. Emphasis is on the performance of the character and how it reads to the audience. Techniques and methods for facial expressing, lip-synching, and staging are explored. 1.0 hours lecture, 4.0 hours activity. (020245)

**APCG 445 Advanced Animation Production 3.0 Fall**

Prerequisites: APCG 340, APCG 345.  
The computer animation production process is taught in this class. Working from a script, storyboard, and/or animatic, students complete an "animated short" with accompanying sound, music, and visual effects. Emphasis is on working as a member of a computer animation team, similar to a real-world production facility. 1.0 hours discussion, 4.0 hours activity. Special fee required; see the Class Schedule. (002367)

**APCG 470 Video Game Production 3.0 Fall**

Prerequisites: APCG 370.  
Using the principles of game design, students work in collaborative teams to design, implement, test, and produce a computer game. Marketing strategies are also explored. 1.0 hours lecture, 4.0 hours activity. (020246)

**APCG 491 Portfolio 1.0 Fa/Spr**

Prerequisites: APCG 340.  
This course is an exploration of design and implementation of portfolios germane to the computer graphics field. (020247)

**APCG 495 Advanced Production 3.0 Fa/Spr**

This course is designed to give hands-on experience to students in Applied Computer Graphics or related majors. Students work as collaborators on large-scale, professional productions relevant to their field of study. Content of this course is subject to change each semester. 1.0 hours discussion, 4.0 hours activity. (020563)

**APCG 498 Special Topics 1.0–3.0 Fa/Spr**

This course is for special topics offered for 1.0-3.0 units. Typically the topic is offered on a one-time-only basis and may vary from term to term and be different for different sections. See the Class Schedule for the specific topic being offered. (015891)

**APCG 499 Special Problems 1.0–3.0 Fa/Spr**

Prerequisites: Faculty permission.  
This course is an independent study offered for 1.0-3.0 units. You must register directly with a supervising faculty member. You may take this course more than once for a maximum of 6.0 units. Credit/no credit grading only. (020136)

**APCG 499H Honors Project 3.0 Fa/Spr**

Prerequisites: Junior standing, top 5% of major. An enrolled student must be sponsored by a full-time faculty member in Applied Computer Graphics.  
Independent study resulting in a piece of scholarly or creative work involving substantial research to be completed and publicly presented. Must receive a grade of B or higher. This course must be taken during two consecutive semesters in order to complete the 6-unit Honors project. This course is not available to graduate students. You may take this course more than once for a maximum of 6.0 units. (020643)

**APCG 545 Advanced Animation Post-Production 3.0 Fa/Spr**

Prerequisites: APCG 445.  
This course focuses on the completion of animation projects in the post-production environment, including editing, music, sound effects, and other post-production elements to successfully complete professional-level short animations. Emphasis is on working as a member of a computer animation team, similar to a real-world production facility. 1.0 hours lecture, 4.0 hours activity. Special fee required; see the Class Schedule. (020248)

**APCG 698 Graduate Seminar in Computer Graphics 3.0 Inquire**

Prerequisites: Graduate level standing, faculty permission.  
Seminar on advanced topics in digital media. Technique, theory, and current events in computer graphics are explored. (020402)

