COMPUTER ANIMATION AND
GAME DEVELOPMENT

Computer Animation and Game Development Program (http://www.csuchico.edu/cagd/)
O'Connell Center 236
530-898-4891
530-898-4070 (fax)
Email: cagd@csuchico.edu
Program Director: Clarke Steinback

Insight
Do you want to make video games or animations? Do you want to be a 3D animator, video game producer, 3D modeler, texturing specialist, VFX designer, game designer, game programmer, or motion capture expert? Do you want to make the most of your creativity? If so, Computer Animation and Game Development can help you develop in-demand skills for the video game and entertainment industries. Computer Animation and Game Development is the synergy of creativity and technology and affords you an opportunity to put your imagination to work in this realm of collaborative teams creating multimedia experiences.

Experience
The CAGD program focuses on hands-on collaborative experiences in a diverse community of students. Courses are designed to provide instruction in industry-standard tools and techniques as well as formal processes and pipelines of 3D animation, computer-generated imagery, and game production. A culminating experience in production studio courses see students work in teams to generate animations, video games, and 3D experiences in a real-world studio environment.

The Computer Graphics Club (CGC) is a student-run club that provides a place for aspiring creators to meet fellow creatives, discuss industry trends and ideas, and network with each other and alumni. The club holds regular meetings and social activities as well as hosts special events.

Outlook
With virtually limitless career possibilities, the CAGD program is proud to provide its students with skills including animation production, CGI, agile development, game scripting, augmented/virtual reality, motion capture, lidar scanning, and photogrammetry. Our diverse student population enters careers in the lucrative fields of video games, film, television, and commercials, as well as scientific research and a host of other enterprises.

Our alumni currently work across a wide variety of industry companies including 2K Games, Epic Games, Weta Digital, Sony Imageworks, Ubisoft, Pixar, Blizzard, and more as part of the rapidly growing $2.2 trillion global game and entertainment industry.

Programs
Undergraduate
Bachelor's
• Computer Animation and Game Development BS (https://catalog.csuchico.edu/colleges-departments/college-communication-education/computer-animation-game-development/computer-animation-game-development-bs/)

Minors
• Video Game Design Minor (https://catalog.csuchico.edu/colleges-departments/college-communication-education/computer-animation-game-development/video-game-design-minor/)

See Course Description Symbols and Terms (https://catalog.csuchico.edu/academic-standards-policies/course-description-symbols-terms/) for an explanation of course description terminology and symbols, the course numbering system, and course credit units.

CAGD 110 Computer-Assisted Art I
Typically Offered: Fall and spring
This course provides an introduction to computer graphics 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. 4 hours activity, 1 hour discussion. (002287)
General Education: Arts (C1)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division

CAGD 112 Virtual and Physical Cameras Applications
Typically Offered: Fall and spring
This course is designed as an introduction to multiple software packages and applicable techniques to develop skills to create 3D assets based on real world environments and objects. We explore the practical uses of physical and virtual cameras, material and 3D scanning for asset creation, scene composition and digital lighting. 2 hours activity, 2 hours lecture. (015869)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division; Laptop required

CAGD 117 Concept Design and Storyboarding
Typically Offered: Fall and spring
An in-depth look into the pre-production process as it directly pertains to storyboard creation, character development and design, pre-visualization techniques, and principles of concept design. 2 hours activity, 2 hours lecture. (015870)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Lower Division
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Typically Offered</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGD 170</td>
<td>Video Game Design</td>
<td>3</td>
<td>Fall and spring</td>
<td>-</td>
</tr>
<tr>
<td>CAGD 189</td>
<td>Industry Internship</td>
<td>1-3</td>
<td>Fall and spring</td>
<td>CAGD 117 and CAGD 230 all with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 198</td>
<td>Special Topics</td>
<td>1-3</td>
<td>Fall and spring</td>
<td>CAGD 112 with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 199</td>
<td>Special Problems</td>
<td>1-3</td>
<td>Fall and spring</td>
<td>CAGD 170 with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 230</td>
<td>Digital Modeling</td>
<td>3</td>
<td>Fall and spring</td>
<td>CAGD 112 with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 240</td>
<td>Digital Animation</td>
<td>3</td>
<td>Fall and spring</td>
<td>CAGD 110 with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 250</td>
<td>Introduction to Technical CGI</td>
<td>3</td>
<td>Fall and spring</td>
<td>CAGD 112 and CAGD 230 all with a grade of C- or higher.</td>
</tr>
<tr>
<td>CAGD 270</td>
<td>Level Design</td>
<td>3</td>
<td>Fall and spring</td>
<td>CAGD 170 with a grade of C- or higher.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Units</td>
<td>Prerequisite</td>
<td>Typically Offered</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>-------</td>
<td>--------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CAGD 280</td>
<td>Introduction to Game Scripting</td>
<td>3</td>
<td>CAGD 180 or CSCI 111</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 289</td>
<td>Industry Internship</td>
<td>1-3</td>
<td></td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 295</td>
<td>Managing Media Pipelines</td>
<td>3</td>
<td>CAGD 117 or CAGD 170</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 299</td>
<td>Special Topics</td>
<td>1-3</td>
<td></td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 299</td>
<td>Special Problems</td>
<td>1-3</td>
<td>Faculty permission</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 320</td>
<td>Digital Texturing</td>
<td>3</td>
<td>CAGD 230 with a grade of C- or higher.</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 325</td>
<td>Motion Capture</td>
<td>3</td>
<td>CAGD 230 with a grade of C- or higher.</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 330</td>
<td>3-D Computer Modeling</td>
<td>3</td>
<td>CAGD 320 with a grade of C- or higher.</td>
<td>Fall only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 331</td>
<td>3-D Character Modeling</td>
<td>3</td>
<td>CAGD 330 with a grade of C- or higher.</td>
<td>Spring only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGD 340</td>
<td>Computer Animation</td>
<td>3</td>
<td>CAGD 240 with a grade of C- or higher.</td>
<td>Fall and spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CAGD 345W Advanced Animation Pre-Production and Story Development (W) 3 Units W, GW
Prerequisite: GE Written Communication (A2) requirement, CAGD 250 with a grade of C- or higher.
Typically Offered: Fall and spring
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." 3 hours lecture. (015871)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required; Writing Course; Graduation Writing Assessment

CAGD 350 3D Scanning 3 Units
Typically Offered: Fall and spring
This course provides an introduction and technical foundation to tools and strategies used to develop 3D scanned content and deliverables leading to effective visual communication as it relates to digital production in the game and animation industries. Emphasis is placed on the basics of scanning theory, hardware uses and limitations, safety, digital capture and pipeline development. 2 hours activity, 2 hours lecture. (022149)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 358 Emerging Technologies in Media and Entertainment 3 Units
Prerequisite: CAGD 112, CAGD 180 for CAGD majors; JOUR 255 or 255W, JOUR 260W for JOUR majors; MADT 206 for MADT majors.
Typically Offered: Fall only
This professional skills and technology course teaches students in media, entertainment, and technology fields about new and emerging trends in media and entertainment technologies, including, but not limited to, Virtual Reality, Augmented Reality, Photogrammetry, LIDAR scanning, 360 degree photo-scanning, and Motion Capture. The course is focused on the exploration of emerging technologies, as it applies to the various industries in media and entertainment, including, but not limited to, journalism, storytelling, and game development. 3 hours discussion. (021966)
Cross listing(s): JOUR 358, MADT 358
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division

CAGD 370 Video Game Development 3 Units
Prerequisite: CAGD 270, CAGD 280 both with a grade of C- or higher.
Typically Offered: Fall and spring
This 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 hours activity, 2 hours lecture. (020242)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 373 Game Asset Production 3 Units
Prerequisite: CAGD 320 with a grade of C- or higher.
Typically Offered: Fall and spring
This course explores the basic concepts, principles, practices, tools and techniques of game asset production and the production pipeline used primarily in games and interactive environments. Topics include creating, modifying, texturing, lighting, and rendering environmental and prop assets across a variety of media. Projects are designed to guide students through the process of designing digital assets and understanding how objects are important and used in games and interactive environments. Students produce game assets that demonstrate the concepts, principles, workflows, and techniques associated with game asset production. 2 hours activity, 2 hours lecture. (021633)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 374W Interactive Storytelling in Video Games 3 Units W
Prerequisite: CAGD 345W or CAGD 370 (with a grade C- or higher).
Typically Offered: Fall and spring
This course examines video games as a storytelling medium, investigating how interactive storytelling incorporating rich characters and stories that incite an immersive experience, requires approaches to writing that may be linear or nonlinear. Students will delve into the evolution of narrative in video games along with the iterative process of writing for video games and examine the critical component of a unified experience between writer and level designer. Students will engage in the elements of narrative for video games through investigation, analysis, and design. 2 hours activity, 2 hours discussion. (022152)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required; Writing Course

CAGD 375W Video Game Pre-Production 3 Units W, GW
Prerequisite: GE Written Communication (A2) requirement; CAGD 370 (with a grade C- or higher).
Typically Offered: Fall and spring
An intermediary course studying the video game pre-production and development process. This course covers the software and production processes used within the video game development industry. Emphasis is placed on game documentation, team communications, and understanding Agile production processes. The course gives students a practical approach to creating the pre-production elements of a video game. 3 hours lecture. (022194)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required; Writing Course; Graduation Writing Assessment
CAGD 377 Mobile Game Development 3 Units
Prerequisite: CAGD 370 with a grade of C- or higher.
Typically Offered: Fall and spring
This course investigates the evolution of mobile gaming and the challenges for developing mobile games such as design, art, programming, distribution, marketing, and monetization are examined. The phases in mobile game development and various roles in a development project are explored. Existing and planned mobile games are analyzed. The process of planning, designing, implementing, and producing mobile games on various architectures are also investigated. Throughout the course, game concepts and proposals are created for analysis with promising proposals moving on to planning, design, implementation, and development. 2 hours activity, 2 hours discussion. (021444)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 380 Game Scripting 3 Units
Prerequisite: CAGD 280 (with a grade of C- or higher) or CSCI 211 (with a grade of C- or higher).
Typically Offered: Spring only
This course covers an introduction to game scripting and takes the student through the process of creating games using an industry-standard game engine. The course explores using a game engine and associated scripting to maneuver characters around in 3D space, develop game environments, implement special effects, manipulate objects, script menus and graphical user interfaces, create non-player character behaviors, and much more. The student is required to have basic programming skills and game design experience from which this course expands in using scripting and game engine to create effective games. 2 hours activity, 2 hours lecture. (021604)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 389 Industry Internship 1-3 Units
Prerequisite: Faculty permission.
Typically Offered: Fall and spring
This internship is offered for 1.0-3.0 units. Students must register directly with a supervising faculty member. 0 hours supervision. (020127)
Grade Basis: Credit/No Credit
Repeatability: You may take this course for a maximum of 15 units
Course Attributes: Upper Division

CAGD 398 Special Topics 1-3 Units
Typically Offered: Fall and spring
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. 3 hours lecture. (015892)
Grade Basis: Graded
Repeatability: You may take this course more than once
Course Attributes: Upper Division

CAGD 399 Special Problems 1-3 Units
Prerequisite: Faculty permission.
Typically Offered: Fall and spring
This course is an independent study offered for 1.0-3.0 units. You must register directly with a supervising faculty member. 0 hours supervision. (020135)
Grade Basis: Credit/No Credit
Repeatability: You may take this course for a maximum of 6 units
Course Attributes: Upper Division

CAGD 420 Digital Lighting and Texturing 3 Units
Prerequisite: CAGD 330 with a grade of C- or higher.
Typically Offered: Fall only
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. 2 hours activity, 2 hours lecture. (020243)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 432 3-D Character Rigging 3 Units
Prerequisite: CAGD 330 (with a grade of C- or higher) or CAGD 340 (with a grade of C- or higher).
Typically Offered: Spring only
This course explains the technical skills and challenges of rigging for 3-D animation. Students develop key technical skills for 3-D character setup including how to build, rig, skin, pose, and test 3-D models for animation. Students explore the process of creating joints, assembling skeletons, fine-tuning rigs for realistic motion, rigging bodies and faces, and techniques for binding surfaces to skeletal rigs for animation. 2 hours activity, 2 hours discussion. (021225)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 441 3-D Character Animation 3 Units
Prerequisite: CAGD 340 with a grade of C- or higher.
Typically Offered: Fall and spring
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. 2 hours activity, 2 hours lecture. (020245)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division; Laptop required

CAGD 445 Advanced Animation Production 3 Units
Prerequisite: CAGD 330 or CAGD 340, CAGD 345W.
Typically Offered: Fall only
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. 3 hours discussion. (002367)
Grade Basis: Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Upper Division
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Prerequisite</th>
<th>Typically Offered</th>
<th>Grade Basis</th>
<th>Repeatability</th>
<th>Course Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGD 458</td>
<td><strong>Applied Emerging Technologies in Media and Entertainment</strong> 3 Units</td>
<td></td>
<td>CAGD 112, CAGD 180 for CAGD majors; JOUR 255 or JOUR 255W for JOUR majors; MADT 206 for MADT majors.</td>
<td>Spring only</td>
<td>Graded</td>
<td>You may take this course for a maximum of 3 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 470</td>
<td><strong>Video Game Production</strong> 3 Units</td>
<td></td>
<td>CAGD 375W (with a grade of C- or higher); CAGD 373 (with a grade of C- or higher) for CAGD majors only.</td>
<td>Fall and spring</td>
<td>Graded</td>
<td>You may take this course for a maximum of 3 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 495</td>
<td><strong>Advanced Production</strong> 3 Units</td>
<td></td>
<td>Faculty permission.</td>
<td>Fall and spring</td>
<td>Graded</td>
<td>You may take this course for a maximum of 12 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 498</td>
<td><strong>Special Topics</strong> 1-3 Units</td>
<td></td>
<td>Faculty permission.</td>
<td>Fall and spring</td>
<td>Credit/No Credit</td>
<td>You may take this course more than once</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 499</td>
<td><strong>Special Problems</strong> 1-3 Units</td>
<td></td>
<td>Faculty permission.</td>
<td>Fall and spring</td>
<td>Graded</td>
<td>You may take this course for a maximum of 6 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 499H</td>
<td><strong>Honors Project</strong> 3 Units</td>
<td></td>
<td>Junior standing, top 5% of major.</td>
<td>Fall and spring</td>
<td>Graded</td>
<td>You may take this course for a maximum of 6 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 545</td>
<td><strong>Advanced Animation Post-Production</strong> 3 Units</td>
<td></td>
<td>CAGD 330 or CAGD 340, CAGD 345W</td>
<td>Spring only</td>
<td>Graded</td>
<td>You may take this course for a maximum of 3 units</td>
<td>Upper Division</td>
</tr>
<tr>
<td>CAGD 589</td>
<td><strong>Industry Internship</strong> 1-3 Units</td>
<td></td>
<td>Fall and spring; 0 hours supervision.</td>
<td>Graded</td>
<td>Graded</td>
<td>You may take this course for a maximum of 15 units</td>
<td>Upper Division</td>
</tr>
</tbody>
</table>
CAGD 598  Special Topics  1-3 Units
Prerequisite: Department permission.
Typically Offered: Fall and spring
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. 0 hours lecture. (020132)
Grade Basis: Graded
Repeatability: You may take this course more than once
Course Attributes: Upper Division

CAGD 599  Special Problems  1-3 Units
Prerequisite: Faculty permission.
Typically Offered: Fall and spring
This course is an independent study of special problems offered for 1.0-3.0 units. You must register directly with a supervising faculty member. 0 hours supervision. (020137)
Grade Basis: Credit/No Credit
Repeatability: You may take this course for a maximum of 6 units
Course Attributes: Upper Division

CAGD 697  Independent Study  1-6 Units
Typically Offered: Fall and spring
0 hours supervision. (020138)
Grade Basis: Credit/No Credit
Repeatability: You may take this course for a maximum of 10 units
Course Attributes: Graduate Division

CAGD 698  Graduate Seminar in Computer Graphics  3 Units
Typically Offered: Inquire at department
3 hours seminar. (020402)
Grade Basis: Graduate Graded
Repeatability: You may take this course for a maximum of 3 units
Course Attributes: Graduate Division

Computer Animation and Game Development Program

The Faculty

Daniel G Alioto  2018
Lecturer
Associate of Arts Orlando College

Christina G Backlund  2015
Lecturer
Master of Arts CSU-Chico

Preston Farris  2023
Lecturer
Bachelor of Science CSU-Chico

Dean Fogle  2019
Lecturer
Bachelor of Science CSU-Chico

Edgar I Garcia Muro  2019
Lecturer
Bachelor of Science CSU-Chico

Kilan S Larsen  2021
Lecturer
Associate of Arts Irvine Valley College

Frank L Pereira  2003
Lecturer

Master of Arts CSU-Chico

Cody W Philbrook  2021
Lecturer

Nathan J Pool  2021
Lecturer

Mark K Pullyblank  2012
Lecturer
Certificate Vancouver Inst of Media Arts, Vancouver BC, Canada

Martin A Salcedo  2019
Lecturer
Bachelor of Science CSU-Chico

Clarke H Steinback  1993
Program Coordinator
Doctor of Philosophy Univ Of Cal-Santa Cruz

Jeff M Underwood  2012
Lecturer
Bachelor of Science CSU-Chico

Jennifer K Underwood  2015
Lecturer
Master of Arts CSU-Chico

Connor W Zelinsky  2019
Lecturer
Master of Science Glasgow School of Art/Glasgow University