

Simulation and Game Development

Home to the first state-approved associate degree program in game development in the United States, Central Piedmont's Simulation and Game Development program offers a student-centered, multidisciplinary approach to the study of simulation and game development, with opportunities to develop skills in design, programming, and 3D modeling and animation. Developed in response to industry needs, the curriculum includes both 2D and 3D game development and utilizes industry-standard technologies. Students work with a wide range of tools, including Maya, Adobe Premiere Pro, MS Visual Studio, GitHub, Adobe Photoshop, Adobe Substance Painter, Adobe After Effects, Adobe Fuse, Adobe Animate, Adobe Illustrator, ZBrush, StereoKit, Twine, Unreal Engine and Unity 3D. Coursework provides students with a broad background in simulation and game development and prepares them for success in collaborative, creative work environments.

Graduates may qualify for employment as designers, artists, animators, programmers, testers and quality assurance analysts in various industries and sectors, including entertainment, education, healthcare, engineering, forensics, banking and government.

The Simulation and Game Development program at Central Piedmont offers three degree options:

Design

The Simulation and Game Development Design degree prepares students to work as entry level designers in the game industry or similar industries. Students explore: game design and mechanics, level design, virtual environments, MMO, game narrative and audio, 2D and 3D art, playtesting, prototyping, and project management. Work-based learning provides opportunities for real-world skill development.

Programming

The Simulation and Game Development Programming degree prepares students to work as entry level programmers in the game industry or similar industries. Students explore: mobile game development and programming, tool development, virtual/augmented/mixed reality programming utilizing multiple forms of VR hardware, Artificial Intelligence, database systems, software engineering, and game engine scripting. Work-based learning provides opportunities for real-world skill development.

3D Modeling and Animation

The Simulation and Game Development 3D Modeling and Animation degree prepares students to work as entry level 3D modelers and animators in the game industry or similar industries. Students explore: tools and techniques used in computer graphics, 3D model assets, 2D and 3D animation, storyboarding, virtual and augmented environments, and concept art techniques. Work-based learning provides opportunities for real-world skill development.

The Simulation and Game Development program also offers six certificates and a diploma program.

For specific information about potential positions and wages in simulation and game development employment, visit the Central Piedmont Career Coach website.

Simulation and Game Development (A25450)

Degree Awarded

The Associate in Applied Science degree in Simulation and Game Development is awarded by the college upon completion of one of the following three tracks:

- Simulation and Game Development - Design (A25450A) (p. 1)
- Simulation and Game Development - Programming (A25450B) (p. 2)
- Simulation and Game Development - 3D Modeling and Animation (A25450C) (p. 3)

Admissions

- A high school diploma or equivalent is required.
- Placement tests determine placement in English (ENG) and mathematics (MAT).
- Some courses have prerequisites or co-requisites; Check the Courses section for details.

Contact Information

The Simulation and Game Development program is in the Information Technology Division. For more information, call the program chair at 704.330.6398 or the program office at 704.330.6549.

Simulation and Game Development - Design (A25450A)

General Education Requirements

ENG 111	Writing and Inquiry	3.0
Take 3.0 credits from the following:		3.0
ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
COM 110	Introduction to Communication	
COM 231	Public Speaking	
Take 3.0 credits from the following:		3.0
MAT 121	Algebra/Trigonometry I	
MAT 143	Quantitative Literacy	
MAT 152	Statistical Methods I	
MAT 171	Precalculus Algebra	
MAT 271	Calculus I	
Take 3.0 credits from the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	

Simulation and Game Development

PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Take 3.0 credits from the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

Major Requirements

SGD 111	Introduction to Simulation and Game Development	3.0
SGD 112	Simulation and Game Development Design	3.0
SGD 113	Simulation and Game Development Programming	3.0
SGD 114	3D Modeling	3.0
SGD 162	Simulation and Game 3-D Animation	3.0
SGD 165	Simulation and Game Character Development	3.0
SGD 168	Mobile Simulation and Game Programming I	3.0
SGD 172	Virtual Simulation and Game Environments	3.0
SGD 212	Simulation and Game Development Design II	3.0
SGD 213	Simulation Game Development Programming II	3.0
SGD 214	3D Modeling II	3.0
SGD 289	Simulation and Game Development Project	3.0
SGD 124	Massive Multiplayer Online Programming	3.0
SGD 164	Simulation and Game Audio and Video	3.0
SGD 174	Simulation and Game Level Design	3.0
SGD 274	Simulation and Game Level Design II	3.0

Take 2.0 credits from the following:		2.0
ACA 122	College Transfer Success	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	
WBL 131	Work-Based Learning III	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	
WBL 132	Work-Based Learning III	

Total Credits 65

Simulation and Game Development - Programming (A25450B)

General Education Requirements

ENG 111	Writing and Inquiry	3.0
Take 3.0 credits from the following:		3.0
ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
COM 110	Introduction to Communication	
COM 231	Public Speaking	
Take 3.0 credits from the following:		3.0
MAT 121	Algebra/Trigonometry I	

MAT 143	Quantitative Literacy	
MAT 152	Statistical Methods I	
MAT 171	Precalculus Algebra	
MAT 271	Calculus I	

Take 3.0 credits from the following: 3.0

ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

Take 3.0 credits from the following: 3.0

ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

Major Requirements

SGD 111	Introduction to Simulation and Game Development	3.0
SGD 112	Simulation and Game Development Design	3.0
SGD 113	Simulation and Game Development Programming	3.0
SGD 114	3D Modeling	3.0
SGD 162	Simulation and Game 3-D Animation	3.0
SGD 165	Simulation and Game Character Development	3.0
SGD 168	Mobile Simulation and Game Programming I	3.0
SGD 172	Virtual Simulation and Game Environments	3.0
SGD 212	Simulation and Game Development Design II	3.0
SGD 213	Simulation Game Development Programming II	3.0
SGD 214	3D Modeling II	3.0
SGD 289	Simulation and Game Development Project	3.0
SGD 122	Simulation and Game Database Programming	3.0
SGD 125	Simulation and Game Artificial Intelligence	3.0
SGD 268	Mobile Simulation and Game Programming II	3.0
SGD 285	Simulation and Game Software Engineering	3.0

Take 2.0 credits from the following: 2.0

ACA 122	College Transfer Success	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	
WBL 131	Work-Based Learning III	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	

WBL 132	Work-Based Learning III	
Total Credits		65

Simulation and Game Development - 3D Modeling and Animation (A25450C)

General Education Requirements

ENG 111	Writing and Inquiry	3.0
Take 3.0 credits from the following:		3.0

ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
COM 110	Introduction to Communication	
COM 231	Public Speaking	

Take 3.0 credits from the following:		3.0
--------------------------------------	--	-----

MAT 121	Algebra/Trigonometry I	
MAT 143	Quantitative Literacy	
MAT 152	Statistical Methods I	
MAT 171	Precalculus Algebra	
MAT 271	Calculus I	

Take 3.0 credits from the following:		3.0
--------------------------------------	--	-----

ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

Take 3.0 credits from the following:		3.0
--------------------------------------	--	-----

ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

Major Requirements

SGD 111	Introduction to Simulation and Game Development	3.0
SGD 112	Simulation and Game Development Design	3.0
SGD 113	Simulation and Game Development Programming	3.0
SGD 114	3D Modeling	3.0
SGD 162	Simulation and Game 3-D Animation	3.0
SGD 165	Simulation and Game Character Development	3.0
SGD 168	Mobile Simulation and Game Programming I	3.0
SGD 172	Virtual Simulation and Game Environments	3.0
SGD 212	Simulation and Game Development Design II	3.0
SGD 213	Simulation Game Development Programming II	3.0

SGD 214	3D Modeling II	3.0
SGD 289	Simulation and Game Development Project	3.0
SGD 117	Art for Games	3.0
SGD 161	Simulation and Game Animation	3.0
SGD 237	Rigging 3D Models	3.0
SGD 244	3D Modeling III	3.0
Take 2.0 credits from the following:		2.0
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	
WBL 131	Work-Based Learning III	
WBL 112	Work-Based Learning I	
WBL 122	Work-Based Learning II	
WBL 132	Work-Based Learning III	
Total Credits		65

Simulation and Game Development Diploma Specialization in Game Development (D25450-21)

General Education Requirements

ENG 111	Writing and Inquiry	3.0
COM 110	Introduction to Communication	3.0

Major Requirements

SGD 111	Introduction to Simulation and Game Development	3.0
SGD 112	Simulation and Game Development Design	3.0
SGD 114	3D Modeling	3.0
SGD 212	Simulation and Game Development Design II	3.0
SGD 113	Simulation and Game Development Programming	3.0
SGD 213	Simulation Game Development Programming II	3.0
SGD 214	3D Modeling II	3.0
SGD 168	Mobile Simulation and Game Programming I	3.0
SGD 268	Mobile Simulation and Game Programming II	3.0
SGD 172	Virtual Simulation and Game Environments	3.0

Total Credits		36
---------------	--	----

Simulation and Game Development Certificates (C25450)

- Simulation and Game Development Certificate Specialization in Simulation and Game Development Level I (C25450-21) (p. 4)
- Simulation and Game Development Certificate Specialization in Simulation and Game Development Level II (C25450-22) (p. 4)
- Simulation and Game Development Certificate Specialization in Simulation and Game Development Level III (C25450-30) (p. 4)
- Simulation and Game Development Certificate Specialization in Design (C25450-24) (p. 4)
- Simulation and Game Development Certificate Specialization in Programming (C25450-26) (p. 4)
- Simulation and Game Development Certificate Specialization in 3D Modeling and Animation (C25450-28) (p. 4)

Simulation and Game Development Certificate Specialization in Simulation and Game Development Level I (C25450-21)

This certificate is also available to high school students enrolled in Career & College Promise.

Major Requirements

SGD 111	Introduction to Simulation and Game Development	3.0
SGD 112	Simulation and Game Development Design	3.0
SGD 113	Simulation and Game Development Programming	3.0
SGD 114	3D Modeling	3.0
Total Credits		12

Simulation and Game Development Certificate Specialization in Simulation and Game Development Level II (C25450-22)

Major Requirements

SGD 162	Simulation and Game 3-D Animation	3.0
SGD 165	Simulation and Game Character Development	3.0
SGD 168	Mobile Simulation and Game Programming I	3.0
SGD 172	Virtual Simulation and Game Environments	3.0
Total Credits		12

Simulation and Game Development Certificate Specialization in Simulation and Game Development Level III (C25450-30)

Major Requirements

SGD 212	Simulation and Game Development Design II	3.0
SGD 213	Simulation Game Development Programming II	3.0
SGD 214	3D Modeling II	3.0
SGD 289	Simulation and Game Development Project	3.0
Total Credits		12

Simulation and Game Development Certificate Specialization in Design (C25450-24)

Major Requirements

SGD 124	Massive Multiplayer Online Programming	3.0
SGD 164	Simulation and Game Audio and Video	3.0
SGD 174	Simulation and Game Level Design	3.0
SGD 274	Simulation and Game Level Design II	3.0
Total Credits		12

Simulation and Game Development Certificate Specialization in Programming (C25450-26)

Major Requirements

SGD 122	Simulation and Game Database Programming	3.0
SGD 125	Simulation and Game Artificial Intelligence	3.0
SGD 268	Mobile Simulation and Game Programming II	3.0
SGD 285	Simulation and Game Software Engineering	3.0
Total Credits		12

Simulation and Game Development Certificate Specialization in 3D Modeling and Animation (C25450-28)

Major Requirements

SGD 117	Art for Games	3.0
SGD 161	Simulation and Game Animation	3.0
SGD 237	Rigging 3D Models	3.0
SGD 244	3D Modeling III	3.0
Total Credits		12