Game Development Certificates at Penn State Behrend

The U.S. video game industry exceeds both the movie and music industries in revenues and employs a range of professionals, including graphic artists, software developers, and marketing specialists. Game development also finds its way into mainstream industries where graduates with gaming and graphic skills are needed to develop virtual worlds and experiences for their customers. Game development requires a multi-disciplinary approach to delivery that includes computing skills, arts, and cinema.

The [School of Engineering](http://psbehrend.psu.edu/node/4899) and the [School of Humanities and Social Sciences](http://psbehrend.psu.edu/school-of-humanities-social-sciences) offer two interdisciplinary certificates in Game Development: Digital Arts and Design and Technical Programming. Both are open to students in any academic program.

# Game Development: Digital Arts and Design Certificate

Course requirements:

* **GAME220: Intro to Game Design** (3 credits): This course explores the various roles of game design and how they work together to produce a complete interactive experience. The narrative process of game development will be explored including concept generation, narrative styles, and story and character development. The visual experience of gaming will be explored, including visual perception, coordinate systems, geometric representation, modeling, and animation.
* **GAME250: Technical Game Development** (3 credits): This course explores game programming fundamentals, sprites, animation sequences, lighting, 2D game engines, mathematical models of rendering, input controller technology, game physics, and sound.
* **GAME420: Advanced Game Design** (3 credits): Applications of film-making technique are discussed as well as the application of Machinima to animation and visualization.
* **GAME480: Game Development Project** (3 credits): Project management concepts will be applied by a team of students to conceptualize a game concept, determine a target market, and generate requirements, implement, and test a game.

This certificate is open to students in any academic program.

# Game Development: Technical Programming Certificate

Course requirements:

* **GAME220: Introduction to Game Design** (3 credits): This course explores the various roles of game design and how they work together to produce a complete interactive experience. The narrative process of game development will be explored including concept generation, narrative styles, and story and character development. The visual experience of gaming will be explored, including visual perception, coordinate systems, geometric representation, modeling, and animation.
* **GAME250: Technical Game Development** (3 credits): This course explores game programming fundamentals, sprites, animation sequences, lighting, 2D game engines, mathematical models of rendering, input controller technology, game physics, and sound.
* **GAME450: Advanced Game Production** (3 credits): This course explores the application of traditional computing concepts to game development including networking, distributed systems, scalability, latency compensation techniques, AI, and 3D graphics engines.
* **GAME480: Game Development Project** (3 credits): Project management concepts will be applied by a team of students to conceptualize a game concept, determine a target market, and generate requirements, implement, and test a game.

This certificate is open to students in any academic program.

Visit the Registrar's website to download the [certificate application.](http://psbehrend.psu.edu/Academics/academic-services/college-registrar/forms-and-requests)