



**MERCER**  
COUNTY COMMUNITY COLLEGE

# COURSE OUTLINE

**Course Number**  
**DMA 226**

**Course Title**  
**Computer Animation II**

**Credits**  
**3**

**Hours:**  
**Lecture/Lab/Other**  
**1 / 4 / 0**

**Pre-requisite:**  
**DMA 135**

**Implementation**  
**Spring 2022**

**Catalog description:**

Students will create several short animations that explore different techniques and forms of expression utilized in the animation industry. Students will study examples of successful student and professional animated shorts and benefit from lectures and in-class demos on specific techniques. Required student projects include specific, graded deliverables throughout the semester, layouts, and rendered playblast videos for critique. Various components such as cameras, character rigs, scripts, node hierarchies, and particle systems are utilized to develop unique animations. Students build portfolios and hone presentation skills using professional workflows and best practices.

**General Education Category:**  
**Not GenEd**

**Course coordinator:**  
**Mauro Zamora ext. 3340 zamoram@mccc.edu**

**Required texts & Other materials:** (None)

**Course Student Learning Outcomes (SLO):**

***Upon successful completion of this course the student will be able to:***

1. Design and develop animations that demonstrate one or more of the 12 principles of animation. [ILG # 1, 2, 4, 5, 10, 11; PLO # 1, 2, 3, 4, 5].
2. Demonstrate knowledge of animation concepts such as layout, animation editors, keyframing, breakdowns, in-betweens, etc. [ILG # 1, 2, 4, 10, 11; PLO # 2, 3, 4, 5]
3. Visualize a story using design, narrative, and animation principles. [ILG # 1, 2, 4-11; PLO # 2, 3, 4, 5]
4. Identify codes unique to computer graphics and in particular computer animation. [ILG # 1,2,4, 10 11; PLO # 5, 6]
5. Construct node hierarchies and apply expressions to optimize animation curves and performance. [ILG # 1-4, 10, 11; PLO # 5]
6. Explain basic animation, storytelling, and design principles as they relate to specific animation projects. [ILG # 1, 4-6, 10, 11; PLO # 6]
7. Demonstrate effective knowledge of the tools and commands of professional animation software. [ILG # 1, 2, 4, 10, 11; PLO # 1, 2, 3, 4, 5]
8. Present a verbal and written critique of student's own and others work. [ILG # 1, 6-11; PLO # 6]

## **Course-specific Institutional Learning Goals (ILG):**

**Institutional Learning Goal 1. Written and Oral Communication in English.** Students will communicate effectively in both speech and writing.

**Institutional Learning Goal 4. Technology.** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

**Institutional Learning Goal 5. Social Science.** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.

**Institutional Learning Goal. 6. Humanities.** Students will analyze works in the fields of art, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language.

**Institutional Learning Goal 8. Diversity and Global Perspective:** Students will understand the importance of a global perspective and culturally diverse peoples

**Institutional Learning Goal 9. Ethical Reasoning and Action.** Students will understand ethical frameworks, issues, and situations.

**Institutional Learning Goal 10. Information Literacy:** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

**Institutional Learning Goal 11. Critical Thinking:** Students will use critical thinking skills understand, analyze, or apply information or solve problems.

## **Program Learning Outcomes for DMA: 3D Animation**

1. Understand the pre-production process, for applied design in the areas of animation, multi-media, web design, and digital asset distribution on the internet.
2. Understand and apply storytelling principles applicable in the areas of animation, multi-media, web design, and digital asset distribution on the internet.
3. Produce and manage digital assets for various production scenarios including animation, multi-media, web design.
4. Produce and manage two-dimensional and three-dimensional digital assets containing change over time and throughout pagination using professional software.
5. Use professional 3-D modeling, animation, prototyping, or text editor software applications.
6. Develop and present ideas in both written and oral formats.
7. Use professional software applications to design websites with accessible design and content.
8. Use design principles to develop websites that communicate effectively.
9. Create a professional portfolio to serve in the pursuit of further education or employment.

## **Units of study in detail – Unit Student Learning Outcomes:**

### **Unit I**            **“Keyframes & Cameras: Fundamentals”** [Supports Course SLO 1, 3-6, 8]

#### **Learning Objectives**

#### ***The student will be able to:***

- Create and edit keyframes within the timeline.
- Animate a simple object using keyframing, spacing, breakdowns, and in-betweens.
- Compose camera views and animate basic camera movements and transitions.
- Explain animation concepts such as key, frame, keyframe, frame rate, breakdowns, and in-betweens.
- Create an animation utilizing principles such as squash and stretch, slow-in slow-out, and exaggeration.
- Discuss student work during a critique and critically evaluate rendered artwork.

**Unit II** “Hierarchies & Constraints” [Supports Course SLO 1-8]

**Learning Objectives**

***The student will be able to:***

- Create and edit keyframes within Animation editors.
- Create the illusion of simulated physics through keyframed animation.
- Animate simple objects using keyframing, spacing, breakdowns, and in-betweens.
- Construct simple 3D environments and animate camera shots to convey a logical narrative.
- Explain animation concepts such as pivot points, constraints, parenting, grouping, and weight influences.
- Create an animation utilizing principles such as arcs, timing, slow-in slow-out, squash and stretch, and exaggeration.
- Discuss student work during a critique and critically evaluate rendered artwork.

**Unit III** “Special FX [Supports Course SLO 1, 3-8]

**Learning Objectives**

***The student will be able to:***

- Simulate a Visual FX using a particle system.
- Develop a non-particle Visual FX such as lightning, glow, or a shattered object.
- Explain animation concepts such as frame rate, particle, emitter, cache, etc.
- Optimize environments for to compute efficient Visual FX simulations.
- Discuss student work during a critique and critically evaluate rendered artwork.

**Unit IV** “Walk Cycle” [Supports Course SLO 1-8]

**Learning Objectives**

***The student will be able to:***

- Construct a seamless, looping animation to display a unique character walk.
- Define and develop the four main poses of a walk (Contact, Down, Passing, and Up).
- Apply animation principles such as squash and stretch, exaggeration, anticipation, follow through, overlapping animation, and arcs to produce a walk animation.
- Create buffer zones in animation editors to animation curves to optimize looping animations.
- Explain animation concepts such as perspective, timing, and follow through.
- Construct a seamless, looping animation utilizing professional animation software.
- Discuss student work during a critique and critically evaluate rendered artwork.

**Evaluation of student learning:**

**EVALUATION:**

Diligent work on assignments is essential. You must put time, thought, effort, and care into your assignments to complete them successfully. Maya is unforgiving. It will be apparent if you have rushed your work. If you find that you are stuck and not progressing, speak to, or email me right away.

**GRADING:**

Values of quality, aesthetics, taste, etc., are based upon the instructor’s judgment of the work produced, the effort employed, and the total result achieved – as well as progress throughout the semester. To receive full credit, all assignments are due on time at the beginning of the designated class. A late assignment will be accepted one class period after due date with a reduced letter grade.

**BREAKDOWN:**

Projects	60%
Quizzes	20%
Homework	10%
<u>Attendance</u>	<u>10%</u>
Total	100%