



DIG-555: 3D ANIMATION (FORMERLY DIG-572)

Effective Term

Fall 2026

BOT Approval Date

06/12/2025

Discipline

DIG - Digital Media

Course Number

555

Course Title

3D Animation (formerly DIG-572)

Short Title

3D Animation

Credit Status (CB 04)

D - Credit - Degree applicable

Units

Lecture Units

3.00

Total Units

3.00

Hours

Lecture Contact Hours

48-54

Out of Class Hours Lecture

96-108

Total Contact Hours

48 - 54

Total Out of Class Hours

96 - 108

Total Student Learning Hours

144 - 162

Distance Education

Yes

Distance Education

Distance Education Type

Both Fully Online and Hybrid Online

Fully Online Delivery Requirements:

- a. Students must be notified via the college schedule of classes and the syllabus for the class if proctored tests are required for this course
- b. Any planned face-to-face meetings, such as an orientation or study session, must be optional

c. The MSJC curriculum committee requires the use of accessible, asynchronous discussion as a component of every fully online course

Are you using publisher content?

No

Regular Substantive Interaction

Instructor-to-student, student-to-student, and student-to-content contact shall be distributed in a manner that will ensure regular substantive interaction (RSI) is maintained not only weekly but also for the duration of the course. Instructor interactions should be equivalent in time, quality and consistency to the engagement students would receive in a face-to-face course—for example, through announcements, discussion participation, personalized feedback, video messages, or other instructional communications. Instructors are expected to be responsive to student inquiries within a 24-72 hour time frame excluding holidays. RSI will be maintained through a variety of methods:

- Orientation - Students must be oriented to the online and face-to-face portions at the start of the course.
- Announcements - Announcements using the course management system must be posted at least weekly to keep students current on course events, due dates, materials, etc.
- Discussion Forums - Content-related discussion forums within the designated CMS will include appropriate instructor participation and will be initiated and maintained, with timely feedback provided. Instructors are required to monitor the discussions and related activities to provide guidance and direction. Open-ended discussion boards may be used to further learning and interaction.
- MSJC Communication – Instructor will use MSJC-administered communication tools (such as email or the designated CMS communication tools) to regularly communicate with and provide ease of access to students.
- Timely Feedback - Timely feedback on student work will be provided by the instructor, which may include comments and/or rubrics, within the Grades area of the designated CMS.
- Scheduled Meetings – Hybrid and synchronous courses will meet at regularly scheduled times.

ADA Compliance - All course interactions and content must be designed with accessibility in mind and meet ADA requirements.

Catalog Description

This course focuses on the development of 3D animation techniques using industry standard software to simulate movement in environments, objects, or characters. Students will learn how to accurately rig and create animations that can be used in 3D game engines or special effects for film to achieve the maximum level of quality in their platform. (formerly DIG-572)

Requisites

Prerequisite(s)

Prerequisite(s) (must be taken before)

DIG-110 (with a grade of C or better).

Codes

TOP Code (CB 03)

0614.40* - *Animation

CIP Code

50.0102 - Digital Arts.

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Multimedia	End

Learning Objectives

Learning Objectives

Learning Objective

1. Demonstrate the 3D production work flow, guided by pre-production assets, such as storyboards, sketches, treatments and scripts.

2. Employ the appropriate set of polygonal or patch-based modeling tools, as required by the form to be built and the pre-production assets.
3. Construct shading networks appropriate for the surface appearance required by the pre-production assets, considering the material's natural look and any additional aging called for.
4. Create appropriate movement behaviors that describe the action required by the assets and follows the principles of animation, allowing for timing changes.
5. Compose a lighting scheme appropriate for the subject, the action and the mood required by the assets and construct camera compositions with the settings, size and angle required.
6. Demonstrate control over alpha channels at rendering stage and successfully composite elements with one another in post-production.
7. Evaluate 3D animation's most important innovations throughout its history, highlighting contributions from diverse cultures, underrepresented groups, and marginalized voices.
8. Construct and customize an ever-improving portfolio that represents the very best work possible.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome

- | |
|---|
| 1. Students will transform ideas or solutions into real world solutions/outcomes. |
| 2. Students will generate new meaning using different media. |
| 3. Students will adapt and apply a technical skill in a new and novel situation. |

Content

Course Lecture Content

1. Pre-Production
 - a. Storyboard Interpretation
 - i. Element Movement Notations
 - ii. Camera Movement Notations
 - iii. Visual Representation
 1. Historical and cultural differences in storyboard approaches
 2. Visual Storytelling Across Cultures
 - b. Text Notations
2. The 3D Process
 - a. Setting Project Folder
 - i. Naming Conventions
 - ii. New vs. Existing Projects
 - b. Polygon Modeling
 - c. Material Shading
 - i. Material Attributes
 - ii. Explicit UV Mapping
 - d. Lighting
 - i. Types
 - ii. Shadows
 - e. Animation
 - i. Key, In-between, and Breakdown
 - ii. Path
 - iii. Deformation
 - iv. Pose-to-Pose
 - f. Rendering
 - i. Standard Render
 - ii. Render with Alpha Channel for Composite
3. The 3D Space
 - a. World Space
 - b. Object Space

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4. Modeling Expanded
 - a. Skills
 - i. Primitive Creation and Adjustment
 - ii. Process Creation
 - iii. Component Editing
 - iv. Spline Editing
 - b. Manipulation
 - i. Position
 - ii. Rotation
 - iii. Scale
 - iv. Pivot Point
 - v. Modeling for Rigging
 5. Animation Expanded
 - a. Path Animation Control
 - b. Timing Graph Editor
 - c. Rigging
 - i. Forward Kinematic joint setup
 - ii. Inverse Kinematic controllers and operation
 - iii. Spline Kinematic controllers and operation
 - d. Skin Weights
 - i. Controlling Deformation of 3d Mesh
 - ii. Blendshapes
 - e. Squash and Bend Deformers
 6. Rendering Expanded
 - a. Settings
 - i. Formats, Size, Duration
 - ii. Motion Blur
 7. Game Engine Animation
 - a. Exporting Animation from Animation Software
 - b. Importing Animation into Game Engine
 - c. Animation State Machines
 - i. Animation Layers
 - ii. Calling Animations
 8. The Evolution & Importance of Diversity in Animation
 - a. Historical Lack of Diversity
 - b. Current State of Diversity
 - c. Efforts to Improve Diversity
 - i. Animated Shorts
 - ii. The Academy of Animated Art Diversity Action Program
 9. Portfolio
 - a. Preparation of Presentation
 - b. Credits

Methods of Instruction

Method

Activity

Integration

Simulated Production meeting at the start of every assignment strengthen teamwork and increase student interactive discussion.

DE Adaptations for MOI

In an online class, simulated production meetings can be conducted via video conferencing tools within the CMS at the start of each assignment, fostering teamwork and interactive discussion through virtual breakout rooms and collaborative platforms. These meetings would help students strategize and discuss their assignments in a structured online format. Video conferencing tools would include captioning services to ensure all students could participate.

Method

Film/video Viewing and Discussion

Integration

Film and Video examples will showcase animations and animated films created or directed by women or animators of color.

DE Adaptations for MOI

In an online class, film and video viewing can be adapted by providing students with streaming access to curated examples of animations and animated films created or directed by women or animators of color using library resources or public domain content within the CMS. Accompanying discussion forums in the CMS would allow students to engage with the material, reflect on the technical advancements, and discuss their historical significance. All provided multimedia content would be captioned and accessible.

Method

Observation and Demonstration

Integration

Observation and step-by-step demonstration using a visible computer screen provide personal experience with modeling types and animating methods.

DE Adaptations for MOI

In an online class, observation and step-by-step demonstrations can be adapted by using screen recording software to capture detailed tutorials on modeling types and animating methods. These recordings, along with live or recorded Q&A sessions, allow students to view and follow along with the demonstrations using embedded and captioned videos within the CMS for accessibility.

Methods of Evaluation**Method**

Class Performance

Integration

Students will demonstrate proficient skills in modeling tools, shading network design, and timing control of animations through their class performance using video animations focusing on visual effects, communication, and planning.

DE Adaptations for MOE

Students will submit accessible recorded video demonstrations of their animations via the CMS. Instructor feedback will be provided within one week of submission.

Method

Exams/Tests

Integration

Exam essay evaluating historical animation innovations by underrepresented groups and their impacts on animation development.

DE Adaptations for MOE

For an online course, students would submit a timed, written exam essay through the CMS. The essays would be evaluated based on depth of analysis, understanding of historical context, and clarity of argument, with submissions assessed using a pre-determined rubric provided by the instructor. Instructor feedback will be provided within one week of submission.

Method

Portfolios

Integration

Portfolio generation exhibiting artifacts communicating animation skills and knowledge. The portfolio will be evaluated for number of artifacts, artifact quality and visual communication.

DE Adaptations for MOE

In an online course, students would create and submit a digital portfolio showcasing their animation artifacts through the CMS. The portfolio would be evaluated based on the number and quality of artifacts included, as well as the effectiveness of visual communication demonstrated through the presentation of their work. Students could use online portfolio platforms to organize and display their work, accompanied by brief written explanations or video descriptions for each artifact. Instructor feedback will be provided within one week of submission.

Method

Role-playing/Simulation

Integration

An in-class production will simulate a pre-production client meeting. The simulation will be evaluated by quality and communication of pre-production documents, client outcomes, and storyboards illustrating camera and element movements.

DE Adaptations for MOE

In an online course, the in-class production simulation can be adapted by having students participate in a virtual pre-production client meeting via accessible video conferencing tools. Students would submit their pre-production documents, including client briefs and storyboards, through the CMS. Evaluation would focus on the quality and clarity of these documents, the effectiveness of client interaction during the virtual meeting, and the detail and accuracy of storyboards illustrating camera and element movements. Instructor feedback will be provided within one week of submission.

Assignments**Assignment Type**

Reading

In-class and/or outside of class

Outside of class

Formative or Summative

Formative

Assignment

Objective:

This assignment will explore how diverse cultures, identities, and perspectives are represented in 3D animation. By examining case studies, students will gain an understanding of how cultural, gender, and racial dynamics influence animation design and storytelling.

Reading:

Lu, A.S., Green, M.C., Alon, D. (2024). The effect of animated Sci-Fi characters' racial presentation on narrative engagement, wishful identification, and physical activity intention among children. *J Commun*, 74(2), 160-172. <https://doi.org/10.1093/joc/jqad030>

Directions:

Read the provided Green article and write a 1-2 page reflection analyzing how one of the animations discussed in the texts successfully integrates cultural or identity-based themes. Consider how the animation reflects the social, historical, and cultural context of its origin. Discuss how representation in 3D animation contributes to diversity and inclusion in the media landscape and relate this to your own upcoming animation project.

How assignment will be adapted in online format

After completing the readings, students would post their 1-2 page reflections on a discussion board within the CMS. They would then be required to read and respond to at least two peers' reflections, fostering an online dialogue about the representation of diversity and inclusion in 3D animation. Grades and feedback would be supplied through the CMS within a week of submission.

Assignment Type

Writing

In-class and/or outside of class

Outside of class

Formative or Summative

Formative

Assignment

Objective:

This assignment will help students explore and analyze current job-related trends or pressing issues in the game development industry. Students will investigate how these trends impact career opportunities, skills in demand, and industry practices.

Assignment Prompt:

Research a current trend or issue within the game development industry (e.g., the rise of indie game studios, diversity and inclusion in game design, the impact of virtual reality, crunch culture, or the integration of AI). In a 500-750 word essay, address the following:

What is the trend or issue, and why is it important for professionals in the game development industry to understand it?

How does this trend or issue affect job opportunities, required skills, or the work environment in the industry?

What are the potential long-term effects of this trend or issue on the future of game development?

How can aspiring game developers prepare themselves to navigate or address this trend/issue in their careers?

Submission Format:

Submit your essay as a Word document or PDF in the assignment section of the CMS.

How assignment will be adapted in online format

All directions, guidelines, and submissions will be delivered and submitted through the assignment page of the CMS. All feedback will be delivered through the feedback section of the CMS within a week of the due date.

Assignment Type

Other

In-class and/or outside of class

In-class

Formative or Summative

Summative

Assignment

Objective:

Create a space animation with an animated solar system and spaceship interacting with another object.

Directions:

Creation of storyboard for the animation to serve as a roadmap for the animation

Model, texture, material the objects of the scene (planets, spaceship, etc)

Dynamically light the scene

Create motion path-based animation

Setup hierarchy for planets and moons to orbit the sun

Keyframe animate all elements of the scene

Goals:

Use 3d application to animate the scene to visual interest

Tell a short story in their animation

Understand the keyframe animation system

Submission:

Render the animation project into a short movie file

How assignment will be adapted in online format

Directions for this assignment will be delivered through the assignment page on the CMS. Students will submit their exported render of their project to the assignment page of the CMS. All grading and feedback will be supplied to students via the CMS within a week of the due date.

Course Materials**Textbooks**

Murdock, K, L (2024). Autodesk Maya 2024 Basics Guide. SDC Publications. ISBN: 1630575801

Class Size Information**Class Size**

35

Class Size Category

F - Individualized, skills#based instruction/field practice 30

Diversity and Inclusion

Course Design and Materials: Course will incorporate diverse perspectives, authors, and examples that reflect a variety of cultures, identities, and lived experiences. Instructional materials will be reviewed regularly to ensure representation, inclusivity, and alignment with equity-minded practices across disciplines.

Inclusive Learning Environment: Instructors will establish classroom norms and policies that promote respect, civil discourse, and belonging in both online and face-to-face classes. Clear expectations for communication and engagement will support a learning space where all students feel valued and heard.

Accessible Instruction: Course content will be delivered using accessible design. Materials will follow accessibility guidelines within the CMS, including captioned media, readable document formats, and multiple means of engagement to support diverse learning.

Equitable Teaching Practices: Instructors will use transparent and grading criteria, varied assessment methods, and timely feedback to promote fairness and student success. Opportunities for revision, reflection, and multiple demonstrations of learning may be incorporated when appropriate to the discipline.

Culturally Responsive Pedagogies: Instructional strategies will encourage critical thinking about diverse perspectives and systems of power relevant to the course content. Faculty will foster opportunities for students to connect course material to real-world contexts.

Ongoing Reflection and Improvement: Faculty will engage in continuous professional development related to IDEAA principles and reflect on course practices using metacognition to identify opportunities for increased equity, inclusion, and accessibility.

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

Diversity and inclusion are infused into the course by allowing students the freedom to explore and incorporate cultural, historical, gender, and identity-based design choices in their animation projects. Through peer discussions and critiques, students share their work and reflect on how their backgrounds and inspirations, as well as those of others, inform their creative process, fostering an environment where diverse perspectives on race, culture, gender, and sexuality are celebrated and respected throughout the learning experience.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

In this course, assignments, instruction, and evaluation are specifically designed to meet the needs of diverse learners, ensuring equitable access to content. Instruction incorporates multiple modes of learning—visual, auditory, and hands-on activities—catering to different learning preferences and abilities. Scaffolding techniques are used to ensure all learners can engage with the material, with additional support provided to those who may need it.

Interactions

Explain how the course will incorporate student-to-student interaction.

Students will engage in reflective critique of one another's work, and have conversations with their peers about presented content and their own created artifacts.

Explain how the course will incorporate instructor-to-student interaction.

Using the course discussion forums and/or in-class discussions, the instructor will present artifacts of the creative discipline and industry-created artifacts from other markets and cultural backgrounds. Students will deconstruct these artifacts and discuss the merits of the presentation and how the source artifact's cultural background contributes to the work in a unique way.

Explain how the course will incorporate student-to-content interaction.

Students will learn about various markets and how products evolve throughout time and from different cultural markets and what historical-cultural influences lead to those differences. Students will learn design principles and differences from these historical-cultural artifacts and how they succeeded (or failed) in these markets to better understand how to tailor their content for a higher degree of success in these markets.

Explain how the course will incorporate student-to-self interaction (metacognitive).

Students will consider how their own cultural context impacts their content creation and translate this awareness into an understanding of how their content is seen by an end-user.

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