

# EXAM OBJECTIVES



## Autodesk Certified User: Maya

### Target Audience

The Autodesk Certified User (ACU) Maya exam demonstrates competency in 3D modeling and animation. The exam covers the basic use of the Maya software as well as basic computer modeling and animation practices. An individual earning this certification has approximately 150 hours of instruction and hands-on experience with the product, has proven competency at an industry entry-level, and is ready to enter into the job market.

### Candidate Description

A successful candidate can create and set a project, navigate the user interface, and create polygon-based models. The successful candidate can also unwrap a model, rig the model with joints, and animate the model. The successful candidate can create materials and apply them, add cameras, and light and render their scenes. He/she has a good knowledge of proper topology and should be able to troubleshoot their models, rigs, and animations. Furthermore, the minimally qualified candidate can function at a junior level under the supervision of a more experienced person.

### Prerequisites

It is expected that all candidates will have a general understanding of:

- Basic computer skills
- How to navigate the user interface and workspaces
- 3D perspectives
- The Help system within Maya

### Objective Domain

Some of the topics and features of the software that are covered in the exam are listed below each objective.

## 1. Scene Management

### 1.1 Set up a project

- 1.1.a Use the Project Window
  - i. May include defining a project and setting paths and folders.
- 1.1.b Create a new project
- 1.1.c Set the project

### 1.2 Setup the scene preferences

- 1.2.a Change the grid spacing
- 1.2.b Set the scene units
- 1.2.c Set the scene frame rate

### 1.3 Manage scene objects

- 1.3.a Organize objects
  - i. May include selecting, grouping, parenting, and duplicating.
- 1.3.b Navigate and rearrange hierarchies
  - i. May include the Outliner.

### 1.4 Modify Pivots

- 1.4.a Identify the coordinate system used by the pivot
- 1.4.b Change the coordinate system used by an object or component
- 1.4.c Modifying the pivot
  - i. May include moving the pivot, rotating the pivot, using discreet rotate on a pivot, snapping the pivot to a vertex, and centering the pivot on an object.

### 1.5 Modify attributes on one or more objects

- 1.5.a Locate the value of an animated attribute
- 1.5.b Change multiple object's attributes
- 1.5.c Use the Input Line for precision transformation

### 1.6 Change viewport display

- 1.6.a Change viewport shading
- 1.6.b Change viewport lighting
- 1.6.c Determine poly count

## 2. Modeling

### 2.1 Create a polygon primitive

- 2.1.a Toggle interactive creation
- 2.1.b Manipulate the parametric attributes.

### 2.2 Edit polygon surfaces

- 2.2.a Identify polygon components
- 2.2.b Add polygon components
  - i. May include Edit Mesh tools such as Insert Edge Loop, Offset Edge, Bevel, Fill Hole, Append to Polygon, and Wedge.
- 2.2.c Manipulate polygon components
  - i. May include moving and rotating.
  - ii. May include switching between various object and component modes.

- 2.2.d Use the Mesh Display menu
  - i. May include hard and soft edges.

## 2.3 Use image planes

- 2.3.a Create an image plane
- 2.3.b Adjust/modify an image plane

## 2.4 Modeling tool kit

- 2.4.a Utilize Symmetry and Constraints
  - i. May include transform and selection constraints.
- 2.4.b Illustrate uses of Soft Selection
  - i. May include changing Soft Selection parameters.
- 2.4.c Perform object operations
  - i. May include Combine, Separate, Smooth, and Boolean.
- 2.4.d Manipulate components
  - i. May include extruding, beveling, bridging, and adding divisions.
- 2.4.e Utilize tools to modify geometry
  - i. May include Quad Draw, Multi-Cut, Target Weld, and Connect.

## 3. Texture Coordinates

### 3.1 Assign UVs to a mesh

- 3.1.a Apply basic UV mapping projections
  - i. May include Automatic, Planar, Cylindrical, and Spherical.
- 3.1.b Change attributes of UV projections

### 3.2 Use the UV Editor

- 3.2.a Describe UV components
  - i. May include defining a UV and identifying a UV shell.
- 3.2.b Transform a UV shell
  - i. May include Cut, Move and Sew, Unfold, Relax, and Layout.
- 3.2.c Utilize UV manipulation aids
  - i. May include assigning a checker map and showing distortion.

## 4. Materials / Shading

### 4.1 Work with a material

- 4.1.a Differentiate material types
- 4.1.b Differentiate shader types
  - i. May include Lambert, Phong, Blinn, and Anisotropic.
- 4.1.c Create a material
- 4.1.d Assign material to an object
  - i. May include assigning materials to selected polygons.

### 4.2 Modify material attributes

- 4.2.a Use Hypershade
  - i. May include modifying materials using the graph.
- 4.2.b Apply textures to materials
  - i. May include classifying texture types (2D and 3D procedurals, file textures), using color and normal textures, and identifying projection types (when using procedural or using 3D texture types).

4.2.c Change shader specific attributes

## 5. Rigging

### 5.1 Utilize the Skeleton tools

#### 5.1.a Create joints

*i. May include joint orientation.*

#### 5.1.b Edit joints

*i. May include Insert, Mirror, Remove, Connect, Disconnect, and Reroot.*

#### 5.1.c Implement Inverse Kinematics (IK) on joints

*i. May include solver types (RP/SC).*

### 5.2 Use the Skin tools

#### 5.2.a Bind a mesh to joints

#### 5.2.b Paint skin weights

### 5.3 Apply constraints

#### 5.3.a Identify the constraints

*i. May include Parent, Aim, Point, and Orient.*

#### 5.3.b Apply a constraint

*i. May include selection order for creation, weights, etc.*

#### 5.3.c View hierarchy in the Hypergraph

*i. May include identifying object connections.*

## 6. Cameras

### 6.1 Work with cameras

#### 6.1.a Differentiate camera types

*i. May include Camera, Camera and Aim, and Camera and Aim and Up.*

*ii. May include identifying when to use each camera type and knowing the difference between perspective versus orthographic cameras.*

#### 6.1.b Create a camera

*i. May include locking and unlocking a camera.*

*ii. May include looking through a selected camera.*

#### 6.1.c Use the manipulators to adjust camera attributes directly in the viewport

#### 6.1.d Use the Camera tools to adjust the camera view

*i. May include Roll, Yaw-Pitch, Zoom, Dolly, Track, Tumble, Fly and Walk*

### 6.2 Modify camera attribute names or values

#### 6.2.a Define the functions of near and far clip planes

#### 6.2.b Adjust lens/focal length/field of view

### 6.3 Display Film Gate, Resolution Gate, and other view guides

#### 6.3.a Demonstrate the use of Safe Title and Safe Action

#### 6.3.b Show Resolution gate, film gate, and no gate

## 7. Animation

### 7.1 Use the Time Slider and set Playback preferences

#### 7.1.a Set keyframes using Auto Key and Set Key

*i. May include setting a keyframe, moving/manipulating a keyframe, and removing a keyframe.*

7.1.b Change the Time Slider range

7.1.c Create a Playblast

## 7.2 Demonstrate how to animate an object along a path

7.2.a Create a curve

7.2.b Animate an object on the path

7.2.c Control object orientation and banking on the path

7.2.d Manipulate an object along the path

*i. May include setting a motion path key, adjusting motion path attributes, and demonstrating how to use a flow path object.*

## 7.3 Edit animation tangents using the Graph Editor

7.3.a Differentiate different tangent types

*i. May include Auto Tangents, Spline, Clamped, Linear, Flat, Stepped, and Plateau.*

7.3.b Break and unify tangents

7.3.c Lock and unlock(free) the length of a tangent

7.3.d Switch between spline and stepped tangents

# 8. Lighting

## 8.1 Use the Time Slider and set Playback preferences

8.1.a Differentiate light types

*i. May include Ambient, Directional, Spot, Point, and Area.*

8.1.b Create a light

8.1.c Adjust light type-specific attributes

8.1.d Change common light attributes

*i. May include color and intensity.*

8.1.e Use the manipulators to adjust light attributes directly in the viewport

8.1.f Link lights to specific objects

*i. May include making and breaking light links.*

## 8.2 Work with Shadow types

8.2.a Differentiate shadow types

*i. May include Depth Map and Raytraced.*

8.2.b Adjust type-specific shadow attributes

*i. May include shadow quality and color.*

# 9. Rendering

## 9.1 Differentiate the built-in renderers

*i. May include Arnold, Software, Hardware 2.0, and Vector*

## 9.2 Configure render settings

9.2.a Change common settings

*i. May include camera and resolution settings, Frame range*

9.2.b Change renderer specific settings

*i. May include adjusting basic Arnold settings (Sampling).*