Catalog description:
In this course, students will use Autodesk Mudbox software to create artwork and everyday products. Students will create digital sculptures called models. Mudbox will be used for sculpting, posing, painting, texturizing, animating, and rendering. This course develops skills used by game developers, visual effects artists, designers, engineers, and visualization specialists.

Why should I take this course?
Digital sculpting is the first step in the CGI animated movie process. You will also use this method for creating your game assets.

Faculty Contact Information
John R. Bordeau  
Office Phone: 815-802-8863  
Email: jbordeau@kcc.edu  
Web Site: http://www.kcc.edu/facultysites/jbordeau/Pages/default.aspx  
Facebook Page: www.facebook.com/KCCcomputerGraphics  
YouTube Channel: www.youtube.com/c/johnbordeauprofessor  
LinkedIn: John Bordeau  
Faculty Office: V113W  
Technology Division Office: W102  
Office Hours: (Also available by appointment.)

Class Meeting Information
Monday: 6:00 PM – 8:30 PM

Room Information
V102 – Design Technology Lab
Course Outcome

Create and design sculpted detailed organic models using Autodesk Mudbox. The sculpted model will be 3D painted. The scene with the model will be presented with a rendering or animation.

Course Objectives

Upon completion of this course, students will:
- Navigate the Autodesk Mudbox user interface and tools
- Sculpt mesh models
- Apply 3D paint and textures to models
- Import and export Mudbox models
- Create lights and materials
- Pose your model
- Render your sculpture

Required Supplies

- Wacom Intuos Medium Pen and Touch Tablet Model: CTH690
- Headphones/Ear Buds

Recommended Supplies

- Jump/Flash Drive (1 GB Min.)
- 3 Ring Binder

Transferability

COGT2432 Digital Sculpting with Mudbox was designed to meet specific student needs for computer graphic technology.

Transferability of this course will be determined by each transfer institution.

Please see an academic advisor for an explanation concerning transfer option.

Textbook/Instructional Video Information

Book Name: None

Required Training Videos

www.youtube.com/c/johnbordeauxprofessor

Additional Video Information

Professor Bordeau YouTube Channel:
www.youtube.com/c/johnbordeauxprofessor

Preferred Bowser: Google Chrome
Select Playlist and scroll down to Mudbox playlists.
Class Format

A FOUR STEP PROCESS EACH WEEK.

Evaluation

Grading for the course will be based on study questions, quizzes, labs, tests, projects, and class attendance/conduct.

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900-1000</td>
</tr>
<tr>
<td>B</td>
<td>800-899</td>
</tr>
<tr>
<td>C</td>
<td>700-799</td>
</tr>
<tr>
<td>D</td>
<td>600-699</td>
</tr>
<tr>
<td>F</td>
<td>599 or less</td>
</tr>
</tbody>
</table>

Point Distribution:

- Study Questions: 195 Points
- Quizzes: 165 Points
- Labs: 260 Points
- Tests: 50 Points
- Projects: 250 Points
- Attendance/Conduct: 80 Points

Time Commitment Expectation

At a minimum, the average person can expect to spend two to four additional hours outside of class. This time will be dedicated to reading the textbook chapter(s), answering study questions, studying for quizzes and tests, and practicing AutoCAD techniques.

Important Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 19, 2019</td>
<td>First day of fall semester classes</td>
</tr>
<tr>
<td>September 2, 2019</td>
<td>Labor Day – College Closed</td>
</tr>
<tr>
<td>November 8, 2019</td>
<td>Last day to withdraw from classes</td>
</tr>
<tr>
<td>November 27, 5PM to</td>
<td></td>
</tr>
<tr>
<td>December 1, 2019</td>
<td>Thanksgiving Break</td>
</tr>
<tr>
<td>December 6, 2019</td>
<td>Last day of fall semester classes</td>
</tr>
<tr>
<td>December 9-12, 2019</td>
<td>Final Exams</td>
</tr>
</tbody>
</table>
Class Attendance

- Regular attendance at all scheduled class sessions is expected.
- There are NO excused absences.
- To receive full class attendance points, you must not be late or leave early.
- Reading assignments are indicated on the schedule, and should be finished before the topic is covered in class.
- Some important information provided during the lecture does not appear in your textbook, but you will find it useful for completing your labs, quizzes or tests. It is the student’s responsibility to obtain handouts and information presented for any class for which he/she is absent.
- If a student misses four or more classes in one semester or greater than 20 hours of class time, he/she will receive an automatic “F”.

Non-Attendance/Non-Participation

KCC complies with state law and federal financial aid policy. If you receive an attendance grade of F or are institutionally withdrawn from a course, it will affect your eligibility for financial aid.

- You must attend at least one class, or participate at least once for an online course (logging in without participation is not attending), by the 10th day of 16 week courses or within the first 10% of shorter term classes. Non-attendance will result in an attendance grade of F.
- If you have excessive absences and/or no reasonable chance of passing the course at midterm (or after), your instructor may give you a WX grade and have you institutionally withdrawn from the course.

Incomplete Grade Policy

- All course requirements must be completed by the end date of the course.
- An incomplete grade will NOT be granted regardless of the extenuating circumstances.

Withdrawals

- When it is necessary to withdraw from a course or from the college, a student may do so on or before the withdrawal date stated on the syllabus without receiving a punitive final grade. Change of Schedule forms (used to add or drop a course) are available in Student Services and the student should obtain the required signatures prior to submitting the Change of Schedule form to an adviser in Student Services. Students may submit Change of Schedule forms through the mail, but they must be postmarked no later than the withdrawal date. No withdrawals are allowed by phone. To determine the last date to withdraw with a grade of “W” in this course, log into KCConnect and click on “my registration statement” under Academic Profile.  
  https://connect.kcc.edu/
Classroom Code of Conduct

- Use of cell phones during class is not permitted.
- Use of tablets or laptops during class is not permitted.
- No texting, twitter, Facebook, Internet surfing not related to digital sculpting or Mudbox.
- No playing or watching video games.
- No sleeping.
- No food or drinks in the Design Technology Lab (Room V102).
- Please turn off or set cell phones to vibrate. If a call must be answered, please leave the classroom quietly.
- If you violate any of these policies, you will lose that day’s attendance points and be asked to leave the class.
- Students need to adhere to the Code of Conduct located in the college catalog.

Computer Graphic Technology Lab Safety

- Students are allowed to work in V102 Design Technology Lab outside of scheduled Computer Graphic Technology class times during open building hours. Lab schedules are typically posted on the door or bulletin board.

Study Questions Policy

- Study Questions can NOT be made up.
- Study Questions must be submitted by the date/time due.
- Any student failing to submit Study Questions by the date/time due will receive a zero.

Quiz Policy

- Quizzes can not be made up.
- Any student missing a quiz will receive a zero.
- Any student arriving late for the quiz will not be given extra time to complete the quiz.
- Quizzes may not be taken online outside of class.
- The lowest of the quiz scores will be dropped.

Test Policy

- Students failing to take a test will receive a zero for the test.
- There are no makeup tests or excused tests.
- Any student arriving late for the test will not be given extra time to complete the test.
- The lowest of the test scores will be dropped.
- Tests may not be taken online outside of class.
Lab / Project Policy

- Labs/projects must be submitted by the date/time due for full credit.
- Labs/projects must be placed in the correct lab Assignment Submittal to receive credit.
- Lab/projects can be turned in late until the death penalty (Until in Canvas).

Lab Death Penalty (Until in Canvas)

- Labs can be turned late up to one week late.
- All late labs will be assessed a 10% (2 points) penalty.
- Any student failing to submit a lab by the death penalty will receive a zero.
- Labs will not be accepted after the lab death penalty date.

Final Exam Policy

- The comprehensive final exam is mandatory.
- Any student missing the final exam will receive a zero.

KCC Student Athletes Policy

- All student athletes will be granted attendance points while participating in KCC sporting events, not practices.
- All missed quizzes and tests due to sporting events must be completed within one week of the scheduled quiz or test.
- All missed quizzes and tests due to sporting events must be rescheduled during posted office hours.

Plagiarism

- KCC defines plagiarism: Representing the words or ideas of another as one’s own. Plagiarism includes claiming credit for assignments completed by someone else. Copying someone else’s Mudbox file is plagiarism.
College Resources

**Computer Graphic Technology Tutors** – The schedule is posted in rooms V102 and V107.

**Tutorial Assistance** – The center offers free tutorial services on a walk-in basis to support students enrolled at KCC in a wide range of college courses and individual skill development activities. The Learning Assistance Center, L335/339, is the location of most tutorial services. For a current tutoring schedule, go to [http://www.kcc.edu/students/academics/learningassist](http://www.kcc.edu/students/academics/learningassist).

**Office of Disability Services** – KCC offers advisement and special instructional support for students who are physically and learning disabled, as well as those with academic deficiencies. Students will receive appropriate academic instructional support, including preparatory courses, tutorial assistance, study skills assistance, and self-instructional programs. For disability services, go to room L326, Tel: 815-802-8632.

**Learning Resource Center** - The LRC provides a variety of services free to students (print, audio, video, CD-Rom & microfilm collections, computers etc.) The LRC is available to you Monday through Saturday. For specific hours, go to [http://www.kcc.edu/students/library](http://www.kcc.edu/students/library).

---

### Course Calendar

**Week 1 – Monday 8/19/2019**

**Introduction to Mudbox**

**Learning Objectives:**
- What is Autodesk Mudbox
- Who Uses Autodesk Mudbox
- What can I do with Autodesk Mudbox
- Detailing and general sculpting in Mudbox
- Painting and texturing in Mudbox
- Presentation in Mudbox
- Learning resources for Autodesk Mudbox
- Mudbox setup window
- Interface overview
- Load a sculpt template

**Before Class Activities:**
- Reading Assignment: Mudbox Help > Getting Started > About Mudbox
- Reading Assignment: Mudbox Help > Getting Started > Learning Resources
- Reading Assignment: Mudbox Help > Getting Started > Mudbox Setup Window
- Reading Assignment: Mudbox Help > Getting Started > Interface Overview
- Reading Assignment: Mudbox Help > Getting Started > Load a Sculpt Template
- Video Assignment: Introduction to Mudbox Playlist

**In-Class Activities:**
- Review Syllabus
- Review Canvas
- Study Question: Introduction to Mudbox, Due by End of Class
Week 2 – Monday 8/26/2019

Getting Your Feet in the Mud

Learning Objectives:
• Configuring your Wacom tablet
• Launch Mudbox
• Load a model
• Navigate the 3D view
• Adding subdivision levels
• Sculpt a model
• Sculpt using layers and stencils
• Paint a model
• Painting Using a stencil
• Save your work

Before Class Activities:
• Reading Assignment: Mudbox Help > Getting Started > QuickStart Tutorial
• Video Assignment: Getting Your Feet in the Mud Playlist
• Study Questions: Getting Your Feet in the Mud, Due Week 2 – Monday 5:15 PM

In-Class Activities:
• Quiz: Introduction to Mudbox, (In-Class)
• Lab: Quick Mud, Due Week 2 - Friday 12:00 PM

Week 3 – Monday 9/2/2019  Labor Day

No Class.


**Sculpting - Basic**

Learning Objectives:

Start Sculpting

- Sculpting overview
- Sculpting basics
- Mesh resolution and subdivision levels
- Add a subdivision level
- Delete a subdivision level
- Display a different subdivision level
- Edit sculpt tool properties
- Properties Window
- Sculpt tools tray
- Sculpt tools
  - Smooth
  - Relax
  - Grab
  - Pinch
  - Flatten
  - Foamy
  - Wax
  - Scrape
  - Fill
  - Knife
  - Smear
  - Bulge
  - Amplify
  - Freeze
  - Erase

Sculpt Layers

- Sculpt layers overview
- Create a sculpt layer
- Sculpt on a layer
- Amplify, reduce, or invert sculpting on a layer
- Hide or show a sculpt layer
- Group sculpt layers
- Delete a sculpt layer
- Lock a model
- Change the order of sculpt layers
- Merge two or more sculpt layers
- Combine all layers onto the base level
- Freeze mesh based on a sculpt layer

Before Class Activities:

- Reading Assignment: Mudbox Help > Sculpting
- Video Assignment: Sculpting – Basic Playlist
- Study Questions: Sculpting – Basic, Due Week 4 – Monday 5:15 PM

In-Class Activities:

- Quiz: Getting Your Feet in the Mud (In-Class)
- Lab: Sculpting – Basic, Due Week 4 - Friday 12:00 PM
Sculpting - Intermediate
Learning Objectives:
  Sculpt Using Symmetry
  • Topological symmetry
  • Set a topological axis
  • Sculpt using tool symmetry
  • Sculpt using layer symmetry
  • Mirror a sculpt layer on an asymmetrical model
Stamps and Stencils
  • Stamps
  • Stencils
  • Create a stencil
  • Edit a stencil
  • Sculpt using a repeating stamp image
  • Sculpt a single stamp using the Imprint tool
  • Move, rotate, or scale a stencil
  • Sculpt using stencils
Curves
  • Curve resolution
  • Add curves to mesh edges
  • Create precise 3D curves based on a plane
  • Draw 2D curves on the view plane
  • Draw 3D curves on a mesh
  • Delete curves
  • Display curve points
  • Erase curves or curve segments
  • Extend or connect curves
  • Modify the curves
  • Relax or smooth curves
  • Show or hide curves
  • Sculpt using curves

Before Class Activities:
  • Reading Assignment: Mudbox Help > Sculpting
  • Video Assignment: Sculpting – Intermediate Playlist
  • Study Questions: Sculpting – Intermediate, Due Week 5 – Monday 5:15 PM

In-Class Activities:
  • Quiz: Sculpting - Basic (In-Class)
  • Lab: Sculpting – Intermediate, Due Week 5 - Friday 12:00 PM
Week 6 – Monday 9/23/2019

Sculpting - Advanced

Learning Objectives:

Sculpting Details
- Increase detail with the Refine tool
- Decrease detail with the Reduce tool
- Add or remove detail with the Remesh tool
- Combine multiple meshes into one object
- Separate meshes into multiple objects

Remeshing
- Retopology
- Manual remeshing
- Create a mesh from curves
- Apply symmetry to an existing mesh
- Delete many tiny poly islands
- Patch holes in a mesh
- Reduce a mesh
- Retopologize a mesh
- Draw curves to guide retopology
- Smooth selected regions of a mesh

Anatomy
- Sculpting an anatomical figure
- Explore the muscle anatomy

Before Class Activities:
- Video Assignment: Sculpting – Advanced Playlist
- Reading Assignment: Sketching – Online (Canvas)
- Reading Assignment: Understand anatomical space – Online (Canvas)
- Reading Assignment: Explore the muscle anatomy – Online (Canvas)

In-Class Activities:
- Quiz: Sculpting - Intermediate  (In-Class)
- Lab: Sculpting – Advanced, Due Week 6 - Friday 12:00 PM
**Week 7 – Monday 9/30/2019**

**Painting - Basic**
Learning Objectives:

Start Painting
- Painting overview
- Painting basics
- Paint on your 3D model
- Flood paint
- Erase paint
- Change the paint color
- Paint using symmetry

Painting Layers
- Paint layers overview
- Create a new paint layer
- Group paint layers
- Blend paint layers
- Change the opacity of a paint layer
- Delete a paint layer
- Duplicate a paint layer
- Export paint layers
- Show or hide paint layers
- Lock and unlock a paint layer
- Merge paint layers
- Move paint layers
- Freeze mesh based on a paint layer
- Paint to apply transparency
- Paint using brush stamps

Paint Tools Tray
- Paint Brush
- Projection (Paint using stencil projection)

Before Class Activities:
- Reading Assignment: Mudbox Help > Painting
- Video Assignment: Painting – Basic Playlist
- Study Questions: Painting - Basic, Due Week 7 – Monday 5:15 PM

In-Class Activities:
- Lab: Painting – Basic, Due Week 7 - Friday 12:00 PM
Painting - Intermediate
Learning Objectives:

Paint Tools Tray
- Eyedropper *(Sample color on a model)*
- Air Brush
- Pencil
- Clone *(Copy painted regions)*
- Dry Brush *(Paint using a dry brush technique)*
- Blur *(Blur detail in painted textures)*
- Dodge *(Lighten or darken image areas)*
- Burn *(Lighten or darken image areas)*
- Contrast
- Sponge *(Adjust Color Saturation)*
- Hue
- Hue Shift
- Invert

UVs
- UV Overview
- View painted images with UVs
- Paint across multiple UV tiles
- Paint texture maps in 2D - *(Flatten to UV Space)*
- Adjust UV positions in 2D
- Hide and show texture tiles on a model

Before Class Activities:
- Reading Assignment: Mudbox Help > Painting
- Video Assignment: Painting – Intermediate Playlist
- Study Questions: Painting - Intermediate, Due Week 8 – Monday 5:15 PM

In-Class Activities:
- Quiz: Painting – Basic *(In-Class)*
- Lab: Painting – Intermediate, Due Week 8 - Friday 12:00 PM
**Week 9 – Monday 10/14/2019**

**Painting - Advanced**

Learning Objectives:

PTEX Painting
- PTEX painting overview
- Prepare a model for PTEX painting
- Increase resolution in specific areas (PTEX)
- Adjust tool falloff

Before Class Activities:
- Reading Assignment: Mudbox Help > Painting
- Video Assignment: Painting – Advanced Playlist
- Study Questions: Painting - Intermediate, Due Week 9 – Monday 5:15 PM

In-Class Activities:
- Quiz: Painting – Intermediate (In-Class)
- Lab: Painting – Advanced, Due Week 9 - Friday 12:00 PM

---

**Week 10 – Monday 10/21/2019**

**Select/Move Tools Tray - Mid-Term Project**

Learning Objectives:

Select/Move Tools Tray
- Select/Move Tools Tray – Faces
- Select/Move Tools Tray – Objects
- Select/Move Tools Tray – Borders
- Select/Move Tools Tray – UV Shells
- Select/Move Tools Tray – Translate
- Select/Move Tools Tray – Rotate
- Select/Move Tools Tray – Caliper
- Select/Move Tools Tray – Scale
- Apply correct proportions to a sculpture

Netfabb Software
- Repair a mesh

Before Class Activities:
- Reading Assignment: Apply correct proportions to a sculpture – Online (Canvas)
- Video Assignment: Select/Move Tools Tray Playlist
- Practice Test – Online (Canvas)

In-Class Activities:
- Test1
- Mid-Term Project: Sculpting, Due Week 11 - Friday 12:00 PM
Week 11 – Monday 10/28/2019

**Data Exchange – Part 1**
Learning Objectives:
Data Exchange
- Model file formats
- Importing models
- Import a model
- Import a model as a layer
- Import a model from 3ds Max
- Import UVs
- Export a Mudbox model using FBX
- Open or Import an FBX file

The Sculpture Process
- 3D Printing Monumental Sculptures
- The Story of Rudy Maki

Before Class Activities:
- Reading Assignment: Mudbox Help > Data Exchange
- Reading Assignment: Autodesk University White Paper
- Video Assignment: Data Exchange – Part 1 Playlist
- Study Questions: Data Exchange - Part 1, Due Week 11 – Monday 5:15 PM

In-Class Activities:
- Mid-Term Project: Sculpting, Due Week 11 - Friday 12:00 PM

Week 12 – Monday 11/4/2019

**Data Exchange – Part 2**
Learning Objectives:
- Import an image as a texture map
- Import and export objects with creasing and hard edges
- Import Mudbox files from earlier versions
- Import PTEX files
- Import topology changes
- Save or export your work
- Sending files between 3ds Max and Mudbox
- Send files to Maya, 3ds Max, and Softimage

Before Class Activities:
- Reading Assignment: Mudbox Help > Data Exchange
- Video Assignment: Data Exchange – Part 2 Playlist
- Study Questions: Data Exchange - Part 2, Due Week 12 – Monday 5:15 PM

In-Class Activities:
- Quiz: Data Exchange – Part 1 (In-Class)
- Mid-Term Project: Painting, Due Week 12 - Friday 12:00 PM
Week 13 – Monday 11/11/2019

**Lighting**

Learning Objectives:
- Apply visual effects
  - Tonemapper
  - Depth of field
  - Cavity ambient occlusion
  - Ambient occlusion
  - Screen distance
  - Non-photorealistic
- Change the model display
- Display a model as a silhouette
- Display a model without lights and shading
- Display shadows on a model
- Lights
- Lighting presets
- Create and edit lights
- Move or rotate lights
- Point light properties
- Directional light properties
- Three light system
- Image based light properties

Before Class Activates:
- Reading Assignment: Mudbox Help> Lighting
- Video Assignment: Lighting Playlist
- Study Questions: Lighting, Due Week 13 – Monday 5:15 PM

In-Class Activities:
- Quiz: Data Exchange – Part 2 (In-Class)
- Lab: Lighting, Due Week 13 - Friday 12:00 PM
Week 14 – Monday 11/18/2019

**Materials**
Learning Objectives:
- Materials
- Create materials
- Assign existing materials
- Assign new materials
- Delete materials
- Edit material properties
- Material properties
  - Diffuse
  - Specular
  - Gloss
  - Incandescence
  - Opacity
  - Bump map
  - Normal map
  - Reflection mask
  - Reflection map
  - Receive shadows

Before Class Activates:
- Reading Assignment: Mudbox Help > Lighting and Shading > Materials
- Video Assignment: Materials Playlist
- Study Questions: Materials and Lighting, Due Week 14 – Monday 5:15 PM

In-Class Activities:
- Quiz: Lighting In-class (In-Class)
- Lab: Materials, Due Week 14 - Friday 12:00 PM
Week 15 – Monday 11/25/2019

**Posing**

Learning Objectives:
- To create a single joint
- To create multiple joints
- To create symmetrical pairs of joints
- Pose a model component
- Pose multiple objects
- Committed and uncommitted poses
- Adjust a joints pivot location
- Adjust a joint’s region of influence
- Create pose presets
- Delete joints or skeletons
- Using sculpt layers for posing
- Verify Account with Autodesk Student/Education website

Before Class Activates:
- Reading Assignment: Mudbox Help > Posing
- Video Assignment: Posing Playlist
- Study Questions: Posing, Due Week 15 – Monday 5:15 PM

In-Class Activities:
- Quiz: Materials, (In-Class)
- Lab: Posing, Due Week 15 - Friday 12:00 PM

Week 16 – Monday 12/2/2019

**Rendering, Character Development and Test 2**

Learning Objectives:
- Cameras
- Create camera
- Create camera bookmarks
- Load a reference image into the camera view
- Record a movie
- Save an image of the 3D View
- Log in to Character Development Software online
- Create a character in Character Development software

Before Class Activates:
- Reading Assignment: Mudbox Help > Rendering > Cameras
- Video Assignment: Rendering Playlist
- Study Questions: Rendering, Due Week 16 – Monday 5:15 PM
- Practice Test – Online (Canvas)

In-Class Activities:
- Test 2, (In-Class)
- Final Project: Due Week 16 - Friday 12:00 PM
Final Project Presentation – Monday 12/9/2019
6:00 PM – 8:00 PM

Final Project Presentation
The final project is comprehensive.

Copyright
The materials on this course are only for the use of students enrolled in this course for purposes associated with this course. Further Information regarding KCC's copyright policy is available at [http://www.kcc.edu/students/collegeinfo/copyright/index.asp](http://www.kcc.edu/students/collegeinfo/copyright/index.asp).

Syllabus Disclaimer
Instructor may change this syllabus according to instructional needs or time constraints.