

GA 3860 - DIGITAL SCULPTING

Credits: 3

In this junior-level class, students gain skills to create 3D assets using digital sculpting software. This class focuses on sculpting both inside and outside the constraints of subdivided geometry. The final assignment emphasizes creating clean topology and edge flow, enabling students to create high-quality assets that are ready for the next phase of production within a video game studio. Upon successful completion of this course, students will have gained competency with digital sculpting tools, as well as learned the process and importance of creating various texture maps for use in a game engine.

Prerequisites: none

Course Learning Outcomes:	Exceeding	Meeting	Developing	Not meeting	Program Outcomes	Institutional Outcomes
Model and refine production quality assets utilizing industry-standard tools and techniques.	Multiple sculpts are created and display the Meeting standards. Sculptures are made up of multiple meshes. Sculptures are arranged and presented in a professional manner, and may tell a story.	Sculpt shows evidence of understanding of form, volume, and function. Sculpted texture clearly reflects intended texture. Ex: Such as rock looking like rock, not tree bark. Sculpt shows solid evidence pertaining to use of tools and techniques within sculpting application.	Sculpt lacks solid evidence of understanding of form, volume, and function. Sculpted texture does not read as intended texture. Sculpt lacks solid evidence of understanding of tools and techniques within sculpting application.	Sculpt does not show understanding of form, volume, and function. No sculpted texture has been added. Sculpt lacks solid evidence pertaining to use of tools and techniques within sculpting application.	GA-1, GA-2, GA-3, GA-6	Design Competence, Critical Thinking
Utilize sculpting tools to add high-level detail to low-poly meshes.	Multiple sculpts are created and display the Meeting standards. Sculptures are made up of multiple meshes. Sculptures show evidence of cross application creation. Ex: using maya and zbrush	Sculpt shows solid evidence of utilizing subdivisions, or utilizing projection methods to transfer hi resolution sculpt data to a low resolution mesh.	Submission contains hi resolution sculpt and low resolution mesh but no utilization of projection methods, or subdivisions are present	Sculpt does not utilize subdivisions, or utilize projection methods to transfer hi resolution sculpt data to a low resolution mesh.	GA-1, GA-2, GA-3, GA-6	Design Competence, Critical Thinking
Bake normal and height maps from high-resolution sculpted meshes.	Multiple sculpts are used to create maps, and display Meeting standards. Maps for multiple sculpts are baked. Maps for multiple sculpts are arranged on a single texture atlas maximizing the UV 0-1 space. Maps are free of all artifacting.	UV shells are scaled and arranged to maximize the UV 0-1 space. Baked maps are ready for use in a game engine. Maps show only minor artifacting after baking. Diffuse, Cavity, AO maps are composited together and Specular map is packed in the file's alpha channel. Specular map reflects proper specular values for the mesh it will be mapped onto.	UV shells are created. Baked maps are created. Maps show artifacting after baking. Diffuse, Cavity, AO maps are created but not composited together. Specular map does not reflect proper specular values for the mesh it will be mapped onto. Specular map is not packed into the file's alpha channel.	UV shells are not created. Baked maps are not created. Maps show much artifacting after baking. Diffuse, Cavity, AO maps are created but not composited together. Specular map does not reflect proper specular values for the mesh it will be mapped onto. Specular map is not packed into the file's alpha channel.	GA-1, GA-6	Design Competence, Critical Thinking