ART 271 Digital 3D Modeling and Design

Grand Valley State University
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Office Hours: Mondays 5 – 6 pm

Class Location
Calder Art Center Rm 1815
Meeting Time MW 6 pm - 8:30 pm

A computer-based studio course designed for art majors and non-art majors. Introduction to basic digital fabrication techniques (3D solid digital modeling and rendering, laser cutting, 3D printing, and 3D scanning). Creative project topics include prototypes and inventions, hybrids, digital artifice, and public art proposals.

Text: *Out of Hand: Materializing the Postdigital* by Ron Labaco, 2013

COURSE OBJECTIVES:

- The primary goal of this course is to explore 3D modeling, using Rhino and 3D printing as a medium and tool for personal aesthetic expression

- The student will develop technical competency with CAD/CAM processes as well as post processing procedures- such as rendering, setting up printers, modifying, dying, painting 3D prints, as well as utilizing outsourcing companies to complete projects.

- Projects, samples and exercises are aimed at developing a concern and appreciation for good craftsmanship – in both digital modeling and physical materials

- Stress will be placed on experimentation, thinking through materials and solving problems creatively and effectively.

- Student will develop a working vocabulary and be able to contribute to conversations around digital processes in relationship to other art forms and craft practices.

- Create inventive and thoughtful approaches to completing a project based on thorough research and gathering information

- Recognize and evaluate how digital fabrication plays a role in the production of a sculpture and designed object. Summarize connections between historical modes of art production and digital fabrication.

COURSE EXPECTATIONS

- The student is encouraged to be creative as you approach each assignment, remember to experiment and take risks. Learning comes with trial and error. It is important to challenge yourself and go well beyond what is familiar and safe. Investigation and experimentation are essential for successful and interesting problem solving.

- Your responsibilities as a student are to make an honest effort to master the assignments that are being presented to you and to contribute to the learning experience of the class by being an active participant in all class activities and discussions.

- Critiques are mandatory and are an extremely important aspect of studio courses and should not be missed except in absolute extreme cases. You should be prepared to participate during group critiques with both a project and thoughtful verbal responses.

- Come to class prepared to work - do not come to class with the intent of leaving to purchase or collect materials.

- There will be both in and out of class assignments and exercises. It is essential that students use class time wisely and utilize lab hours when offered.

- Note taking is required during every demonstration. It will reflect to me what you have learned during the class and will be counted as part of your grade

- The student is required to work outside of scheduled class time to complete the projects/samples assigned. A minimum of six hours of outside of class per week is typical of an *average* student.

- Save all work from this class, including files – Not only will you turn in your CAD files for credit, it is important to be in the practice of good file keeping and incremental saving for your own use of records, as well as building your digital portfolio. Give files meaningful names and store them in appropriate and specific folders.

- If a student is demonstrating unsafe studio practice and or not wearing appropriate safety equipment they will be asked to leave the studio and considered absent.

- Please turn down all cell phones upon entering the classroom.

GRADING

In this course all are expected to demonstrate the required skills outlined in each assignment /sample and be present for critique discussions. The final grade will be based on the average of the assigned projects tempered by attendance, work habits, and class participation. Your grade can be detrimentally affected if you are not contributing to the learning process and engaged in the class

The grading system is as follows:
Samples: 20%
Project #1: 20%
Project #2: 25%
Project #3: 25%
Participation 10%

A+ = 97-100%	A = 93-96%	A- = 90-92%	A: Outstanding achievement, the highest accomplishment
B+ = 87-89%	B = 83-86%	B- = 80-82%	B: Praiseworthy performance, definitely above average
C+ = 77-79%	C = 73-76%	C- = 70-72%	C: Average, the most common undergraduate grade
D+ = 67-69%	D = 63-66%	D- = 60-62%	D: Minimally passing, less than the typical undergraduate
F < 60%			F: Failing

Methods of Evaluation

1. Completion of technical exercises for the 3D solid modeling software.
2. Studio production: studio production (in class and out) of finished studio projects.
3. Studio performance: participation, engagement, and attendance.
4. Written and verbal communication/presentation: critique, written pieces, and discussions.
5. Technical exercises on digital fabrication equipment as well as sculpture studio equipment

ATTENDANCE

Attendance is **imperative**. If you miss class time in this class you are missing important instruction time that will not be repeated. The student is required to attend all class meetings and remain in class for the entire class session. The first three absences will not affect the final grade. Additional absences will be reflected in the final grade at one letter grade deduction for each absence beyond three. Any combination of three late arrivals and /or three early departures is the equivalent of one absence.

Excessive absence will result in the filling out of an Irregular Attendance form, which will be submitted to the student's advisor. It is important that the student be on time and prepared to work. If the student is late or absent, the student is responsible for the information presented during that class session. There are no make-up presentations. Failure to attend class regularly and/or arriving late suggest poor motivation on the part of the student.

******If you're not early - you're late******

ASSIGNMENTS

In and out of class assignments will be given. Out of class work will be completed before the class period begins for which the assignment is due. Assignments that are submitted late will accrue a 1/3 of a letter grade deduction for each class period that the assignment is late. After one week, late work will not be accepted.

****Absolutely no late work will be accepted on the final project.****

Group and individual critiques rely on completed work and full student participation. Projects and preparatory work will be evaluated as presented at grading times as a summation of course accomplishment. Sample making assignments will be given to the student for each project and will be included into the final grade. Productivity is very important during this period of a student's study

Lost work (work damaged by the elements, stolen, misplaced, etc.) is viewed as work not done.

All assignments are due at the start of class as laid out in the course calendar.

Incomplete work will not be graded.

Protect all completed work with great care.

A note on turning in digital homework

While you will be responsible for turning in finished objects and samples, you MUST be mindful of taking equal care of your digital work. I will not accept "My computer died last night" as an excuse for not having your work done. "Only a poor craftsman blames his tools" You are expected to have multiple ways of accessing your work should your primary computer die. Always be backing up your work on an external hard drive or at least your flash drive(s). On top of that I recommend backing up to Box.com or dropbox.com, so that even without a hard copy, you have online access to your files.

PLAGARISM

If even a small part of your work is derived from the forms or ideas of other people you are required to cite those references through accompanying documentation/titling. It is possible and appropriate to use outside services, but this should be disclosed and documented so that the extent of your management of the project is known. Don't cheat. Not because I will fail you, but because it's just unethical behavior that will do nothing for you in the long run.
The entire point of this education is to help you learn to craft original solutions to problems.
This especially applies to digital work

PRINTED GUNS

With new laws going into effect, it is necessary to inform you that the printing of guns is prohibited and violates GVSU guidelines and code of conduct. Failure to observe this will result in your removal from the class.

BINDER

A three-ring binder is required: it must contain the syllabus, all handouts, personal research, articles, sketches and notes etc. You must bring the binder with you every class period.
The notebook portion of the notebook/sketchbook combination is a loose-leaf style binder that accommodates a standard 8 1/2" x 11" page. Course handouts and neatly written lecture and course notes should be organized according to subject and assignment.

The contents of the notebook and its presentation are an expression of your abilities as an art student. Start at the beginning of the semester taking accurate and thorough notes and organize this information in a clean, clear, and concise format.

STUDIO HOURS

The student is required to work outside of class time to complete the projects assigned. A minimum of six hours of outside work is expected. A serious art major will discover that a minimum involvement is not sufficient to provide outstanding performance. The studio has posted hours during which time the student may work. You may find this class to be very time consuming, but the more you practice modeling the easier it will become.

SPECIAL NEEDS

If there are any specific physical or learning challenges that the instructor should be made aware of, please let the me know privately as soon as possible.

CONFERENCES

Classes meet for a total of six hours per week. This is generally sufficient time for individual counseling. If the student needs additional time to discuss class performance and /or personal problems that affect class performance, outside appointments are recommended.

ALCOHOL/ DRUGS

Use of the above will not be tolerated under any circumstance during class or during studio hours. In the event you come to class impaired (includes being hung over) I will ask you to leave. There are many obvious problems with power and hand tools to get into, Your inability to respond clearly to a situation doesn't only effect you; it has an impact on others as well.
Don't risk yourself or your studio mate.

CHEMICALS

We may use mild acid based chemicals in this class. A lot of different chemicals are used in the studio. I will go over the potential dangers with you as begin to work with them. However, no matter what chemical, you will always wear your safety goggles, regardless of the nature if the chemical.

THE STUDIO

Basic Rules:

- Never cut directly on the tables. Use a chipboard mat to prolong the life of the benches.
- Headphones and music are not allowed in the studio.
- Smoking is not allowed in the studio.
- Visitors are not allowed in the studio unless invited by the faculty.
- Only currently enrolled students may use the studio facility.
- Each student is responsible for keeping the studio clean. Failure to do so will affect the course grade.
- Do not use any tools, equipment. Machinery or process that has not been demonstrated to you by instructor. Lab assistants are not allowed to demonstrate for you.
- Be aware of your surrounding before you begin to work.
- Check the condition of the machine or tool before using.
- Always protect yourself with full-face shield.
- Keep loose hair and closing away from rotation parts.
- Be sure work area is well lit.
- Only one person should operate a machine at a time.
- Don't interrupt or distract someone when they are working with power equipment.

Please report any broken, lost or damaged tools to the instructor as soon as possible

MATERIALS

Digital Calipers ($10 at Harbor Freight)

1 GB flash/external drive or larger

Mac iOS Laptop- currently updated, Or Windows 7

Cordless 3 button Mouse $10-30 at Best Buy

Rhinoceros 5

Drawing pencils or mechanical pencil

X-acto knife and blades

Sketchbook/ Notebook

Three ring binder

RESOURCES

RHINO
Purchase - www.studica.com/Rhino
Download - www.rhino3d.com/download

TUTORIALS
www.rhino3d.com/tutorials
vimeo.com/rhino/videos
youtube.com

PRINTING
www.shapeways.com
GVSU Pew Library Lab
Kendall College of Art and Design Flex Lab

HOMEWORK TURN IN
GVSU Blackboard
Dropbox.com- You will be sent via your GVSU email an invite to turn in your work in our class folder

OTHER
-Visual Resource Library in the Department of Art and Design
-Art 21 online video resources (or comparable media resources) www.pbs.org/art21/
-Museums, Galleries, and digital fabrication service bureaus: Locally, Grand Rapids Art Museum, Urban
-Institute for Contemporary Art, Frederik Meijer Gardens and Sculpture Park
-Select Manufacturing, Spectrum Cutting, and Laser Dynamics.