Digital Modelling Methods - ART 3367/3396

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Syllabus

Course Description

Digital Modelling is the process of using software to create a computerized representation of a 3-dimensional object. The created object is called a 3D model and these 3-dimensional models can be sculpted and altered in interesting and unique ways using a computer. In this course, students will explore a suite of foundational computer programs such as Blender and Autodesk Fusion360 that enable the creation of digital models. These tools are fundamental to the 3D pipeline and allow room for artistic expression and creativity that lead to new ways of thinking. Also introduced in the course are techniques such as photogrammetry and 3D-scanning which are methods of capturing real world objects for use in the digital realm. The class uses hands-on learning and is structured around a series of engaging projects that challenge creativity. Topics covered include mesh sculpting, nurbs-modeling, texturing, rendering, and photogrammetry. A personal laptop is required for this course.

Objectives

- Learn about the 3D modeling ecosystem; the tools, techniques, and use cases
- Overcome the learning curves that are usually present in 3D modeling software
- Build up the skill with hours of 3D modeling and sculpting practice
- Capture textures in the field and incorporate them into your digital modeling workflow
- Employ methods of bringing real-world objects into the digital 3D space
- Survey techniques in photogrammetry and 3D scanning
- Feel comfortable using these tools and techniques in an artistic, creative and expressive context
- Explore artists already working in this space and learn about their works

Assessment

Students will be assessed on their performance in the course through the completion of four projects as well as in-class exercises. Each day, we will begin with a short lecture followed by work time using a computer and software. Projects will be assigned concurrent with daily exercises and the skills we learn in class will be directly applicable to the project theme. Homework assignments may consist of watching video tutorials, reading material, and researching topics. Plan on spending a few hours each week working on assigned course content outside of class-time.

Roadmap

The calendar provided will be your roadmap to the topics and assignments introduced during each class. The calendar is a dynamic work in progress and is subject to changes as the course progresses. The calendar will be reviewed at the start of each class and any changes will be announced then. As such, it is important to attend each class and communicate with your peers about something you might have missed because of an absence. The calendar will be available online in the drive folder..

Projects

There will be 4 projects during the semester (as time allows). For each project, you will receive a project sheet that contains all the necessary information needed to complete the assignment, such as guidelines, requirements, and helpful tips, including how to submit the finished work. Some projects may require sketching ideas out on paper or digitally in order to communicate the concept to the professor for approval. You are to work independently on your project unless otherwise stated as a group effort. All work created for this course must be your own and any copying/borrowing of other people's work, physical or digital, must be disclosed. Taking work from the internet and presenting it as your own is not permitted and is a potential plagiarism violation. Each project will be submitted in a digital format as detailed by the project sheet.

Required Reading/Watching materials

Many of the topics presented in this course have excellent resources available online for supplemental learning. PDF manuals, video tutorials, and website resources will be presented throughout the course in place of a dedicated textbook. Links to these materials will be provided during the associated lecture and will also be made available online via shared links.

Required Materials

- A laptop which you will bring to class to use for in-class exercises. The laptop must have the basic requirements to install and run the required software on it (see below), and must be able to connect to the internet.
- A power/charging cable for your laptop is a must. 3D modelling is resource intensive and laptop batteries are drained quickly. We will have multiple power outlets available to charge the laptops during class.
- An iPad or Surface tablet computer is not sufficient for the course, and therefore not permitted. The device must have a mouse and keyboard.
- A 3-button mouse (a mouse with a scroll wheel that is also “clickable”) is required.Find your own or buy a cheap one like this: 3-Button Mouse on Amazon

Minimum specs

The minimum requirements for a laptop to run the software that is required for the course is below. We will go over this information in class at the start of the semester, including how to check the specs of your own laptop device.

- Runs on Windows 8.1 and 10 or macOS 10.13 or later
- 64-bit dual core 2Ghz CPU with SSE2 support (32-bit not supported) (any Intel Core i or AMD Ryzen cpu will suffice)
- 4 GB RAM
- 1280×768 display
- Mouse, trackpad or pen+tablet
- Graphics card with 1 GB RAM, OpenGL 3.3
- 3 GB of storage
- Less than 10 year old

Grading

Projects: 60%
In-Class exercises: 20%
Homework: 10%
Attendance 10%
Opportunities for extra credit are available where appropriate

Attendance

Students are expected to attend each class. A late arrival or early departure will count as an absence.

3 unexcused absences = 1 full letter drop of final grade

Students with excessive absences (5 or more) will be dropped from the course. Students are expected to attend all classes, except in cases of emergency, grave illness, religious commitment, or pre-planned events of critical importance. In the case of a planned absence, notify me. For illnesses, provide documentation whenever possible. For any absence, it is the student's responsibility to inquire with classmates for notes, to make up any exercises missed, and to complete impending assignments.This course contains a great deal of technical content which is cumulative in nature. Regular attendance and active participation in the class are essential and catching up is difficult. Come to class prepared to engage in active discussion; bring questions, feedback, and inspiration for yourself and your classmates.

Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

Syllabus Changes

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through email and/or in-person

Honor Code Statement

Students may be asked to sign an honor code statement as part of their submission of any

graded work including but not limited to projects, quizzes, and exams: “I understand and agree to abide by the provisions in the (select: University of Houston Undergraduate Academic Honesty Policy, University of Houston Graduate Academic Honesty Policy). I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston.”

Face Covering Policy

To reduce the spread of COVID-19, the University strongly encourages everyone (vaccinated or not) to wear face coverings indoors on campus including classrooms for both faculty and students.

Presence in Class

Your presence in class each session means that you:

- Are NOT exhibiting any Coronavirus Symptoms that makes you think that you may have COVID-19
- Have NOT tested positive or been diagnosed for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see Student Protocols for what to do if you experience symptoms and Potential Exposure to Coronavirus for what to do if you have potentially been exposed to COVID-19. Consult the (select: Undergraduate Excused Absence Policy or Graduate Excused Absence Policy) for information regarding excused absences due to medical reasons.

Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Justin Dart, Jr. Student Accessibility Center. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor’s recordings for their own studying and notetaking. Instructor’s recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Academic Dishonesty Policy

The College of Art faculty take cheating, plagiarism or any violation of the UH Student Code of Conduct seriously and expect all students to be familiar with the expectations and consequences set out in the Code (http://www.uh.edu/academics/catalog/policies/academ-reg/academic-honesty/index.php.)

Any violation will result in an investigation based on the conditions and steps outlined in the Code of Conduct. Please refer to the examples of plagiarism, the consequences for violations noted in the Code of Conduct, and/or consult your professor if you have specific questions. Please also note that plagiarism also includes reusing your own work submitted for another class. Notification to all concerned parties will be made immediately.
http://catalog.uh.edu/content.php?catoid=6&navoid=1025

Helpful Information

COVID-19 Updates: https://uh.edu/covid-19/
Coogs Care: https://www.uh.edu/dsaes/coogscare/
Laptop Checkout Requests: https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop
Health FAQs: https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/
Student Health Center: https://uh.edu/class/english/lcc/current-students/student-health-center/index.php

Accommodations for Students with Disabilities

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for students who have a disability. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe you have a disability requiring an adjustments/auxiliary aids, please contact the Center for Students with DisABILITIES at 713-743- 5400 or http://www.uh.edu/csd/

Counseling and Psychological Services (CAPS)

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743- 5454 during and after business hours for routine appointments or if you or someone you know is in crisis. Also, there is no appointment necessary for the “Let’s Talk” program, which is a drop-in consultation service at convenient locations and hours around campus. http://www.uh.edu/caps/outreach/lets_talk.html.

COVID-19 Information

Students are encouraged to visit the University’s COVID-19 website for important information including on-campus testing, vaccines, diagnosis and symptom protocols, campus cleaning and safety practices, report forms, and positive cases on campus. Please check the website throughout the semester for updates.

Vaccinations

Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent vaccine information, consult with their

health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

Emergency Numbers/ Websites

UH Police Emergency Number: 911
UH Police Non-Emergency Number: 713-743-3333
UH Student Health Center: 713- 743- 5151 on Third floor
Counseling and Psychological Services: 713-743-5454 (www.caps.uh.edu)
University Fix- It Line: 713-743-4948 (If you put in a request please let staff know)